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ABSTRACT

The first and principal enclosure of the study of attrition at the five federal service academies provides a detailed, technically-oriented account of the methods, procedures, findings, and interpretations of the General Accounting Office's study. The study involved extensive surveys of more than 20,000 current and former students. The survey instruments and tables summarizing the results for each academy are included. (Editor/MSE)

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ED135286

REPORT TO THE CONGRESS

UNITED STATES GENERAL ACCOUNTING OFFICE

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

Student Attrition At The Five Federal Service Academies

Departments of Defense,

Commerce, and Transportation

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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ENCLOSURE A

TECHNICAL REPORT ON SURVEY OF FACTORS RELATED TO ATTRITION

HE008639

MARCH 5, 1976

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PREFACE

This is one of three enclosures providing further details in support of the report "Student Attrition at the Federal Service Academies." It is the first and principal enclosure and provides a detailed, technically-oriented account of the methods, procedures, findings, and interpretations of GAO's own study--involving extensive surveys of more than 20,000 current and former students--of the causes of attrition at the academies. The second enclosure reviews studies of attrition and related issues done by or for or about the academies in recent years. The third enclosure describes the characteristics of students from the class of 1974 who entered and dropped out of the academies.

In preparing these separate documents, we were mindful of three things: (1) that there is a good deal of sometimes conflicting evidence bearing on the question of what causes students to leave the academies before they graduate, (2) that this evidence is of uneven quality because it has been developed by methods which vary widely in their ability to produce causal results, and (3) that full reporting of the bases of judgements should enable those trained in the same rules of evidence to achieve reasonable agreement on interpretation of that evidence. The enclosures were, therefore, prepared to provide the research scientist or interested scholar with the basic evidence from which the main report was developed.

An extensive series of tables are appended to this enclosure. They summarize the results of factor analyses which produced the basic data for this study. The tables are included here for two principal reasons. First, we recognize that interpretations of factoring and the naming of factors is an art and not a science, and we wish to make the bases of our interpretations and namings available to the community of scholars and researchers who are practiced at this technique and may want to see how our general conclusions were developed for themselves. Secondly, we believe the factoring results will be interesting per se to the academies, to those in other institutions of higher learning concerned about student attrition, and to the research community. We believe this not only because they show which student characteristics are associated with which other student characteristics, environmental and nonacademy variables, and so on, but they also provide empirical support for a number of existing behavioral and social science theories.

The author-date method of reference citation prescribed in the "Publication Manual of the American Psychological Association" was used in this enclosure, as well as enclosure B. Thus, the surname of the author and the year of publication have been inserted at appropriate points in the text. The full citation can be easily located in the reference list which is arranged alphabetically by surname at the end of the main body of each enclosure. This method was adopted principally because it provides useful information in the text and because it is currently in use by some 87 journals in the areas of psychology and education.

Despite limitations inherent in the nature of studies such as the one described here, we feel that ours has added substantially to knowledge of why students leave the academies before graduating. Perhaps its most important contribution is in spotlighting the significance of student-environment interactions as they are related to attrition and suggesting the specific nature of those interactions. To the extent that the study has made a contribution, it is due in no small measure to the time and expertise shared with us by acadmey and executive agency officials. The mechanism for providing this assistance was a committee known as the Joint GAO-Academy-Executive Agency Working Group on Academy Attrition. Principal members of the Group are identified in Attachment I to this enclosure. We reserved final judgement on the appropriateness of suggestions made by members of the Group and thus assume responsibility for any weaknesses resulting from failure to adopt those suggestions.

CHAPTER 1

INTRODUCTION

WHY OUR STUDY WAS NECESSARY

When we began our study of student attrition, superintendents at two of the academies were pointing to such social and economic factors as the conflict in Vietnam, the civil rights movements, rising affluence, and suspension of the draft as major factors affecting attrition at their academy. One of them also felt that permissiveness in the country's treatment of the high school generation of the late sixties and early seventies had a significant impact on student resignation.

At about the same time, allegations were being made by a former student of one academy that he was forced to resign because intense hazing led to his complete debilitation. Two students at another academy won honorable mention in the U.S. Naval Institute essay contest with a paper charging that the training system at their academy was authoritarian, insensitive, and not responsive to individual needs and aspirations. Similarly, the top graduate of another academy had accused it of being inhuman and unresponsive to change. Finally, an official academy report stated that many factors contribute to student attrition, noting particularly "health, misconduct, academic deficiency, and an unwillingness or inability to adhere to the high and demanding standards characteristic of academy life."

Further, in our discussions with academy officials and some current students, we noted a tendency for them to blame attrition on some enduring personal characteristic or disposition of the dropout--for instance, he was a quitter or lacked self-discipline--or some national or social factor beyond the control of an academy. On the other hand, dropouts and other current students were more likely to blame attrition on such environmental characteristics as lack of freedom and time shortages.

These feelings, impressions, charges, and allegations represented to some extent the state of knowledge at the time we started our review of why students leave the academies before graduating.

We began our study by holding extensive discussions with personnel responsible for managing the academies and some of those most directly affected by the academies' programs--the cadets and midshipmen. We also examined academy records and studies and reviewed relevant empirical and theoretical literature.

More specifically, officials interviewed at each of the academies always included the Superintendent, the Commandant, and the Academic Dean; academic instructors and a number of commissioned officers in charge of units; and, where available, institutional research personnel, chaplains, psychiatrists, and clinical or counseling psychologists. Interviews were also held with first- through fourth-year students. Official files for at least 25 systematically selected dropouts from each academy were also examined, reasons for leaving were noted, as were comments by superior officers and other academy officials. We attempted to identify and summarize all recent studies relevant to attrition performed by or for the academies. The empirical and theoretical literature consulted generally concerned (1) measurement of human environments, (2) motivational bases of decisions to participate in or withdraw from organizations, and (3) methods of studying the impact of college environments on students.

As a result of this work, we were impressed with the concern expressed by many of the academies over their current rates of attrition, and we were especially impressed with efforts made by the Military Academy and the Air Force Academy to understand and control the causes of their attrition. We also noted the complexity of the attrition phenomenon and the limitations in the information available for making sense of that complexity. Chief among those limitations were (1) the attributional biases known to exist among individuals when inferring the causes of observed behavior or reporting the causes of their own behavior and (2) the narrow focus of studies done on academy attrition. Since our study was designed to overcome these limitations, in some measure, they are more fully explained in the following pages.

Biases in causal attrition

In the field of social psychology there is substantial literature on the types of biases which exist when the causes of observed behavior are inferred or when direct reports of the causes of behavior are obtained from individuals. At the start of our study, we became familiar with this literature and so adopted a critical attitude toward the validity of information obtained from interviews with academy officials and current students and from the official files of dropouts. Additional information obtained during the study reinforced that skepticism. This initial attitude grew from what is known and theorized about (1) differing perceptions between a participant and an observer of the causes of behavior in a social situation and (2) the efforts by individuals to protect or enhance their self-concept in some situations.

Attribution in a social situation

Jones and Nisbett (1972) have convincingly argued that when the causes of behavior are inferred in a social situation "there is a pervasive tendency for actors [participants] to attribute their actions to situation requirements, whereas observers tend to attribute the same actions to stable personal dispositions" (p. 80). In short, the participant emphasizes the role of environmental conditions while the observer emphasizes the role of stable personality traits of the participant. Jones and Nisbett present experimental evidence which shows that observers will hold to a personal-disposition-attribution even when evidence is presented that the participant's behavior is under severe external constraints. They argue that these diverging attributional tendencies are due not only to the participant's need to maintain or enhance his self-concept, but also to the differing types of information available to the participant and observer. The participant not only knows his past behavior in similar situations--and thus whether his present behavior is a typical or atypical instance--but also possesses sense receptors which are preprogramed to observe outward changes in an environment with constantly shifting cues and opportunities. At the same time, for the observer it is not the stimuli impinging on the participant that are the most meaningful--for he cannot occupy the same physical space and thus receive the same sensations, nor can he have the same life history and thus evaluate those sensations the same way. It is the behavior of the participant itself which is most meaningful to the observer.

Some support for this way of looking at the attribution process was found in a study of the causes of attrition done by the Office of Institutional Research at the Military Academy (Butler, 1974). In that study the official personnel records of 372 motivational resignees from the class of 1973 were consulted, and the responses contained in the letters of resignation were compared with exit interview records filled out by company and regimental officers. For the entire class--as shown in Table 1--cadets indicated the following major reasons for resigning: "does not desire a military career," "desires a different career," and "adjustment difficulties." Officers listed "personal problems" most often, followed by "adjustment difficulties," and "does not desire a military career." It is interesting to note not only the differences in rankings of the reasons but also the differences in language used by the two groups to describe "adjustment difficulties." Cadets use more system-deficiency-type language; while officers use more person-deficiency-type language. It should also be noted that while personal problems were mentioned as a cause of attrition 24 percent of the time by

TABLE 1

REASONS WHY CADETS RESIGN, AS STATED BY RESIGNING CADETS (CLASS OF 1973)

Reason	Number of Times Stated	Percent of Times Stated
1. Does not desire a military career.	241	27
2. Desires a different career.	224	25
3. Adjustment difficulties at USMA: i.e., regulations, restrictions, rigors, lack of freedom, 4° System, discipline, loss of identity, time shortage, pressure, emotional maladjustment, too much military and not enough academics, cannot accept honor code, system does not allow one to mature.	189	21

REASONS WHY CADETS RESIGN, AS STATED BY TACTICAL AND REGIMENTAL COMMANDING OFFICERS (CLASS OF 1973)

1. Personal problems: i.e., homesick for girl friend or family, family problems, unspecified, immature, timid, quitter, no guts, insincerity, poor judgment, disorganized, self-centered, irresponsible, no friends, trouble working with others, belligerent, parental pressure to leave, lacks self-discipline, fear of failure/lacks self-confidence.	267	24
2. Adjustment difficulties at USMA: i.e., regulations, restrictions, rigors, lack of freedom, 4° System, loss of identity, pressure, emotional maladjustment, cannot mature academically or socially, cannot adjust, cannot accept honor		

code, dislikes honor code, dislikes academic atmosphere, cannot work to potential.	217	19
3. Does not desire a military career.	206	18

officers; they were mentioned only 7 percent of the time by cadets.

We found other evidence of this attribution tendency in our early interviews with academy officials. Some of them were quick to point to changes in the nature of the population from which the academies must select their students as a primary cause of attrition. They also blamed attrition on such factors as society's attitudes toward the military and the Vietnam War, rising affluence among families of those eligible for appointment, a deterioration in respect for traditional forms of discipline and authority, increasing availability of alternatives to academy attendance caused by changes in the military draft law, and increases in the number of college scholarships.

Other academy officials were as quick to point to unrealistic expectations or lack of mental readiness as the major causes of attrition. Current students and some officials with whom we spoke were less quick to blame attrition on enduring characteristics of those who left, but they still exhibited the same tendency. On the other hand, many who wrote us concerning the reasons they left the academies took great pains to describe the environmental circumstances surrounding their resignation or separation.

Attribution in a choice situation

As a result of the research of Festinger (1957) and others, social scientists know a good deal about a phenomenon known as post-decisional dissonance reduction. This phenomenon occurs when, after a decision, attitudes are changed to make them consonant with that decision. We were advised early in our review that this phenomenon might have operated to bias the information contained in official files of dropouts and might bias responses made in interviews with dropouts. For example, Butler (1974, p. 4) points out in his study of the causes of cadet resignations that:

> * * *how completely valid their reported reasons were is a matter of conjecture. The cadets could have been looking for the easy way out by saying, for example, that they had changed their career goals. By so doing, the socially acceptable response would have been given and any personal inadequacy avoided.

Limited focus of studies on attrition

As stated in "Enclosure B: Review of Studies on Academy Attrition and Related Issues," existing studies on academy attrition exhibit a number of limitations which seriously weakens their utility for understanding the causes of attrition. The interested reader is referred to that enclosure for a full explanation of those limitations. In summary, the limitations cast doubt on the extent to which valid conclusions about a complex and multidimensional phenomenon can be reached with narrowly focused studies, often designed without causitive or even associative considerations in mind, and almost without exception employing at best only bivariate analytical techniques.

OUR APPROACH

To manage the variety and complexity of hypothesized causes of attrition, we adopted a conceptual model for viewing the phenomenon which was similar in many respects to models advocated by other educational and psychological researchers. The model (Figure 1) provided a framework for conducting the entire attrition study and, in particular, for our survey development effort; it incorporates Lewin's (1938) dictum that to understand the causes of a person's behavior it is necessary to examine how his personality interacts with the environment in which that

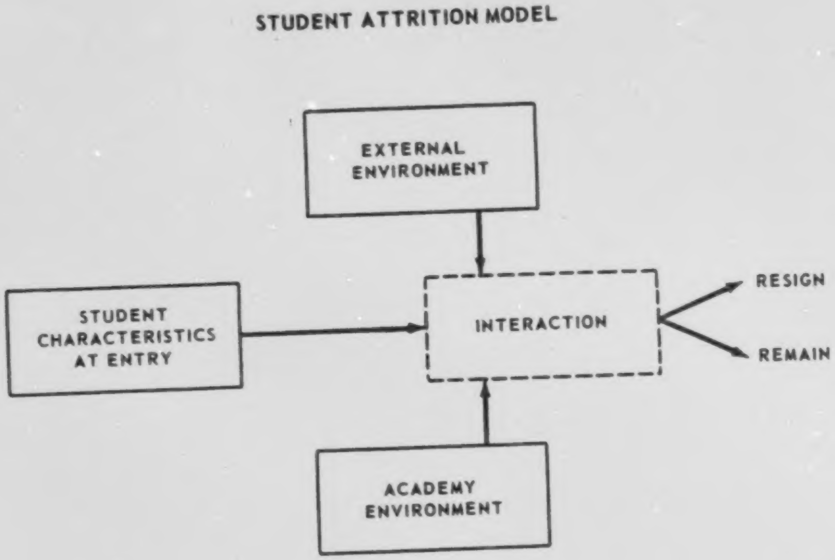


FIGURE 1. Conceptual model of attrition

behavior occurs. Figure 1 also shows that the conceptual framework is similar to the "input-process-output" model of the systems analyst and to the framework recommended by Astin and his colleagues (Astin, 1969; Creager, 1970) for investigating the types of impacts colleges have on their students.

Within this conceptual framework two strategies are generally available for studying the nature of a phenomenon such as attrition. However, only one of those strategies promised to be feasible in terms of data available to us, the current state of the art in analytical methodology, and useful data it would produce.

RESEARCH STRATEGIES AVAILABLE

The strategies available for studying attrition within our conceptual model assume the phenomenon to result largely from a lack of fit between the needs, values, aspirations, and abilities of those who drop out and the environmental opportunities or rewards for expressing those needs. The nature of the data required to test that assumption in each strategy, however, is different.

The first strategy requires aggregate data on student and environmental characteristics and presupposes some type of multivariate analysis to determine which of those characteristics are the most important in causing attrition. This strategy is ideally suited to interinstitutional comparison at a fixed point in time, intrainstitutional comparison over a period of time, or some combination of the two. In an interinstitutional comparison many institutions are compared as to the effect on attrition of their student characteristics and such measures of their environment as (1) conventional classifications of colleges--for instance, curricular organization, type of control, location of school--(2) demographic and other related characteristics--size, budget, faculty-student ratio--(3) social organizational "climates"--for instance, goal content and consensus, power distribution, interrelationships among subsystems (Feldman, 1970). In intrainstitutional comparisons particular institutions are compared with themselves over time to determine the degree of covariance between attrition and many of the same student characteristics and environmental measures.

To achieve somewhat stable comparisons using this first research strategy, researchers have recommended between 4 (Cattell, 1955) and 25 (Guilford, 1955) observations on each variable examined. With only five academies as the focus of our study and many variables hypothesized to cause attrition, examination of the effects of aggregate environmental characteristics was clearly not feasible. Intrainstitutional comparisons by the same token were also not feasible. Therefore, we adopted a research strategy which focused on testing hypotheses about why individual students leave the academies. In adopting this strategy we were aware that officials at a number of academies claimed that a very large percentage of their attrition in recent years has been due to motivational "causes." We were also mindful of March and Simon's (1958) characterization of the decision to voluntarily resign from an organization as resulting from a subjective weighing of the costs and benefits of continued participation in an organization as compared to the costs and benefits of participation in an alternative activity.

The process of developing hypotheses about causes of attrition was guided by our conceptual model and the March and Simon characterization in that we attempted to identify those student characteristics and academy and nonacademy factors which might lead to differential perceptions of the cost and benefits of the Federal service academies.

ORGANIZATION OF ENCLOSURE A

This enclosure is organized into six parts. Chapter 2 describes what we did in preparing for the survey. It describes the procedures used in developing hypotheses about the causes of attrition and the methods employed to insure that the instruments for testing those hypothesized causes were credible and adequately sampled the possible causes of attrition.

Chapter 3 describes the procedures used in administering our questionnaire and the tests made on the data collected to insure that it was sufficiently sound from a psychometric viewpoint to proceed with further analyses. These tests were concerned mainly with the reliability and validity of individual questionnaire items and also with the extent to which questionnaire results could be generalized.

Chapter 4 discusses how and why the various groups were selected for the analysis of recent attrition, as well as the statistical techniques used in performing the analysis. Chapter 5 presents a summary of the analysis and identifies other studies related to those results. Finally, chapter 6 lists the conclusions we feel are warranted from our survey and the research of others.

CHAPTER 2

SURVEY DESIGN

HYPOTHESES DEVELOPMENT

In addition to our own hypotheses development work, we received extensive assistance at this and subsequent stages of the survey from representatives of each of the academies and responsible executive agencies. The mechanism for providing this assistance was a committee known as the Joint GAO-Academy-Executive Agency Working Group on Academy Attrition. Academy and executive agency members of the Working Group generally included personnel responsible for research at the academies and executive agency personnel responsible either for research and data analysis at human resources-type laboratories or manpower program management. Various members of the Working Group were responsible for coordinating activities of subgroups at each of the academies which provided assistance on particular aspects of the study.

Two products by staff of the Military Academy were especially useful in the hypotheses-development stage of the survey. Before establishment of the Working Group, 6 officers and 1 civilian at the Academy--who had been dealing directly with resigning cadets or had been performing research on variables related to attrition--formulated a list of 64 main hypotheses about causes of attrition from their Academy. These hypotheses were based upon previous research or the personal judgments of the individuals involved.

The Military Academy's list of hypotheses fell into three general categories: (1) preentrance variables, (2) Military Academy environmental variables, and (3) variables representing a combination of the other two categories. Preentrance variables were concerned with the candidate's personality; the congruence between his values and goals and those of the Academy; his reasons for entering and his expectations; the alternatives available to him; and his sociological, demographic, and background characteristics. The Military Academy environmental variables were concerned with the Academy's environment in general, and its academic program in particular, as well as the cadet's reasons for leaving and his standing on the abilities the Academy considered important for success at the Academy. Interactional variables were concerned with group cohesion, individual reference group identification, and the availability of female companionship.

The second product produced by staff of the Military Academy was a list of 312 factors and variables in a cadet's life and in the Academy's environment which may affect his decision toward pursuing a military career through attendance at an academy. Cadet life variables were conceptualized as the interaction of (1) the abilities, interests, and characteristics of individual cadets, (2) the shared attitudes and performance standards of the particular groups with whom each cadet interacts, and (3) the multiplicity of experiences each cadet undergoes while participating in the programs and processes operated by the Academy. Sixty-one cadet life variables were identified.

The academy environment variables and factors were divided into two groups: those associated with nine specific fields of academy activity and those associated with the total academy environment. The specific fields of activity were (1) educational programs and processes, (2) physical development programs, (3) military training programs, (4) leadership development programs, (5) the disciplinary system, (6) the honor system, (7) the fourth-class system, (8) cadet lifestyle factors, and (9) administrative support programs.

The complete list of cadet life and environmental factors was reviewed by each academy (including the Military Academy again) for completeness and general applicability. We established a three-point system for rating the importance of each factor's impact on either retention or attrition. Three points indicated great importance, two indicated moderate importance, and one indicated slight importance. Importance ratings were received from four of the academies, so the maximum number of points any factor could be assigned was 24 (6 points for very important in producing both attrition and retention times 4 academies). The top 10 factors are listed in Table 2. It should be noted that while all but 1--or possibly 2--of the top 10-ranked factors relate to relatively enduring personal characteristics of the person, only 18 of the top 74 factors relate to those characteristics. Those top 74 factors represent items with a rating of 6 or higher. They were chosen--along with the Military Academy list of hypotheses--for special attention in the selection and construction of instruments for our survey.

TABLE 2

RANK-ORDERED IMPORTANCE RATINGS OF CADET LIFE AND ACADEMY ENVIRONMENT FACTORS

Factor description	Importance rating[a]
Ability to perform under stress	15.9
Academic ability	14.4
Physical ability	13.8
Attitude toward remaining at academy and pursuing a military career	12.8
Attitudes of the cadet's family	12.6
Attitude toward conforming	12.3
Desire to attend academy	12.3
Attitude toward failure	12.0
Emotional maturity	11.7
Stability	11.6

[a] Decimal places resulted from separate ratings by 10 officers at 1 academy, while an overall rating was supplied by each of 3 academies. (Data from the Mercant Marine Academy was received too late to be included in the ranking.)

INSTRUMENT SELECTION AND CONSTRUCTION

In selecting and constructing instruments for our survey, we were particularly concerned that the results from using them be comparable for all the academies. For measuring student characteristics at entry, this concern was generally met by data which had already been collected. For measurements of the academy environment and nonacademy factors, this concern required construction of a new survey instrument.

Student characteristics at entry

The two primary sources of data about student characteristics at entry were admissions records at each of the academies and the annual survey of entering freshmen conducted by the American Council on Education (ACE). From the admissions records we obtained (1) measures of academic ability as indicated, in most cases, by scores on the four "college board" tests administered by Educational Testing Service (ETS) and by the standardized high school rank determined by ETS and (2) the linear-weighted-composite of all admissions scores as determined by each academy. From the Air Force, Military, and Naval Academies, we also obtained measures of the extent of student involvement in high school extracurricular activities--both athletic and nonathletic. The specific data we obtained from each academy is identified in Attachment II.

The ACE annual survey of entering freshmen is accomplished with a four-page questionnaire designed to be self-administered under proctored conditions. Many of the survey items are essentially the same from year to year and are intended to elicit standard biographical and demographic information--for example, sex; racial and religious background; parental education, income, and occupational level; degree aspirations; probable major field; career plans; attitudes on social and campus issues; and life goals (Kent, 1972). The nature of the items which appeared in the surveys of the classes of 1974 through 1977 are shown in Attachment III.

Although the ACE freshman survey is conducted after admission, the contamination of "characteristics at entry" by subsequent academy environment experience was felt to be minimal for two reasons. First, some of the characteristics did not seem likely to be subject to contamination--demographic and biographical characteristics for example. Second, the survey is conducted within a week or two of the time students first enter the academy so that some of the potential contamination was felt not likely to have had much effect.

Academy environment and nonacademy factors

To measure principally the academy environment and the nonacademy societal and personal factors which might be causing attrition, a large pool of questionnaire items was constructed. Initial reduction of the pool was accomplished by questioning whether each item

--was supported by empirical research, interviews with students or officials, or records contained in files of dropouts;

--was interpretable in terms of the heuristic conceptual model underlying the study; and

- --would produce meaningful results in terms of practical recommendations, if found significant.

We reviewed the reduced pool for adequacy of coverage by comparing it with (1) the list of hypotheses about causes of attrition (referred to earlier) prepared by the Military Academy, (2) a list of societal and personal factors which might affect attrition that had been prepared initially by the Air Force Academy and, subsequently, reviewed in part by the other academies, and (3) the 74 cadet life and academy environment variables--from the list of 312 prepared by the Military Academy--rated as most important in causing attrition or retention by all the academies.

The Joint Working Group then reviewed the reduced items pool, with particular attention given to both the adequacy of coverage and the relevance of specific items and wording for each academy. This review improved the validity of the instrument by eliminating some irrelevant items and items of little utility.

The instrument was further refined by pretesting with both current and former students of each of the academies. Twelve persons from each of the three larger academies participated in the pretesting, while eight participated from each of the two smaller academies. Pretesting was done on a one-on-one basis by GAO field staff who had been instructed on the conduct of such tests. A 39-item checklist of respondent behaviors was used to identify problems with the instrument or with specific items. A debriefing followed each pretest. A few changes were made to the instrument as a result of (1) comments made by the respondent and the GAO staff, and (2) response distribution characteristics. The revised instrument was again reviewed by the Joint Working Group and subsequently administered to current students at the end of April and the beginning of May and mailed to dropouts and graduates during the month of May 1974.

The rationale for including each item in the questionnaire is shown in Attachment IV. To the extent possible questions from other instruments which have demonstrated reliability and validity were adopted and modified for our questionnaire. In writing items to cover the academy environment, several frames of reference were used. As a result, careful examination of Attachment IV will reveal items which show a variety of conceptualizations of that environment. There are items which cover the extent of participation in typical collegiate extracurricular activities, perceptions of the quality and variety of academic instruction, satisfaction with academy programs and procedures, sources of environmental stress, and extent of social supportiveness and other things.

Questionnaire items covering nonacademy factors addressed those variables most frequently hypothesized to be causes of attrition.

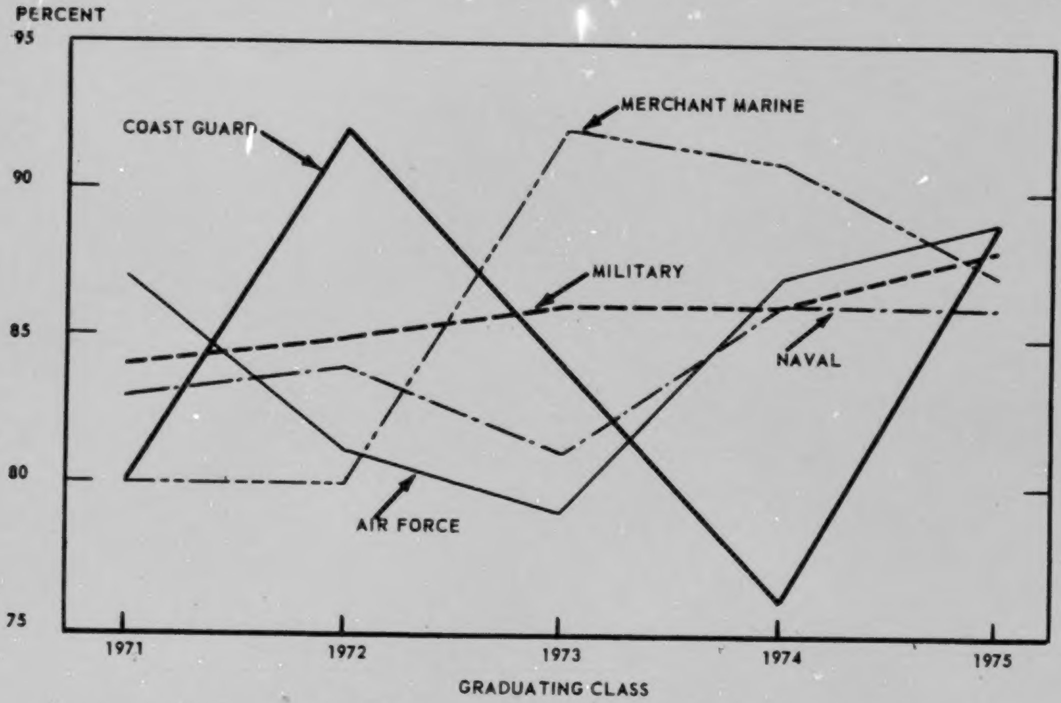
EXPERIMENTAL DESIGN

Reference to Attachment IV will reveal that a number of items in our questionnaire called for recollections of feelings, motivations, and personal status as of selected points in time--for instance, before entering the academy, during basic training preceeding the start of the first academic year, and so on. Moreover, all questions related to the academy environment and to nonacademy factors called for dropouts to respond as of when they were still at the academies. In general, this type of item construction was necessitated because we attempted to test hypotheses about a dynamic phenomenon using a static correlational design. We were, for instance, concerned with what factors in the environment are associated with attrition during the summer preceding the start of the fourth-class academic year, so that the null hypothesis of interest was then that individuals with the same pattern of characteristics at entry, but who have different environmental experiences, have the same probability of attrition. We hoped that by asking for reactions as the survey participants recalled them of their first summer, we might rule out competing hypotheses if the null was rejected--in particular, the hypothesis that observed differences in environmental experiences resulted from actual differences in the environment experienced by those who stayed beyond their first summer.

A number of items called for perceptions as they might have been given during the first summer, the fourth-class academic year, and the third-class year. It was felt particularly important to establish a common experiential frame of reference for these periods because so much of the attrition occurs then. As can be seen in Graph 1, between 77 and 94 percent of all the attrition which has occurred from the last five classes at each of the academies has occurred before the beginning of academic classes of the second-class year.

Graph 1

PERCENT OF ACADEMY ATTRITION OCCURRING IN FIRST TWO YEARS



A number of other questions called for motivations and characteristics at time of entry. These were included because of the lack of completeness in the coverage of those characteristics by the existing data--that is, the admissions records and the ACE freshman survey.

Only approximate tests of our success at ruling out competing hypotheses with the recall item construction were possible. These tests, along with others concerned with the quality of our data base and a description of the conditions of administration, are discussed in the next chapter.

CHAPTER 3

ADMINISTRATION OF INSTRUMENTS AND PRELIMINARY ANALYSES

The methods of administering our questionnaire were designed to maintain the confidentiality of respondents and to achieve high reliability and generalizability. In addition, we concluded that respondent confidentiality had been protected with controls exercised by others in linking data from our questionnaire with data from the ACE freshman survey and from admissions records. Certain preliminary tests of the quality of the data base were performed and these indicated the quality to be sufficiently high--in terms of reliability and external and construct validity (loosely defined)--to proceed with more sophisticated analysis.

ADMINISTRATION OF GAO QUESTIONNAIRE

Two methods of administering our questionnaire were employed: mass administration procedures were used at each of the academies to survey students enrolled as of about May 1, 1974; direct mail-out procedures were used to survey those who had resigned or had been separated from the academies since July of 1970, as well as graduates of the class of 1973.

Mass administration at the academies and the specific instructions given to GAO field staffs responsible for administration--which are included as Attachment V--were designed to (1) eliminate a number of sources of variable error which affect reliability of responses, (2) insure high response rates, and (3) insure the confidentiality of those responses. The direct mail-out procedures were designed to encourage responses and to insure confidentiality.

Mass administration procedures

The principal sources of variable error--the type of error which would produce a tendency for different responses to the same question on repeated administration or the tendency to provide different responses to the same question asked in various forms on the same administration--for which we attempted to control are nonstandard conditions of administration and lack of uniqueness in responses. Standardizing conditions of administration through mass administration tends to reduce the unreliability in measurements due to variances in heat, lighting, noise, instructions, and other similar factors of administration not relevant to the purposes of the measurement (Anastasi, 1968). Mass administration would also reduce unreliability due to any tendency for groups of individuals to formulate common responses to the questionnaire.

Review of responses to a checklist evaluation of administration conditions--a copy of which is in Attachment V--showed that standard conditions generally held within each academy with some differences across academies. Evaluations were provided by at least two GAO staff members independently observing each of eight different mass administrations at the academies.

Officials at two academies which had adjusted the classroom schedule to allow for a day-administration stated that the massed group of students were as quiet during the administration as they had been on any occasion. At a third academy where the administration was scheduled on an evening before final examinations and was conducted in an auditorium where seating was close and no arm rests were provided, the reported noise level during administration was uniformly reported as relatively high. An evening administration was also used at the remaining two academies where there was some evidence of high noise levels, but less consistency in this judgment by the GAO staffs providing independent ratings.

At two of the academies, there were some differences in heat and lighting depending on where students sat in an auditorium. To a question about how many students seemed to be really antagonistic toward answering the questionnaire, 85 percent of the observer responces fell in the categories of some, few, or none--as shown in Table 3. In each of the three instances where a GAO staff member reported that most of the students were antagonistic, at least one other staff member observing the same administration reported only some or a few of the students were antagonistic.

TABLE 3

EVALUATION OF ANTAGONISM TOWARD
RESPONDING TO QUESTIONNAIRE

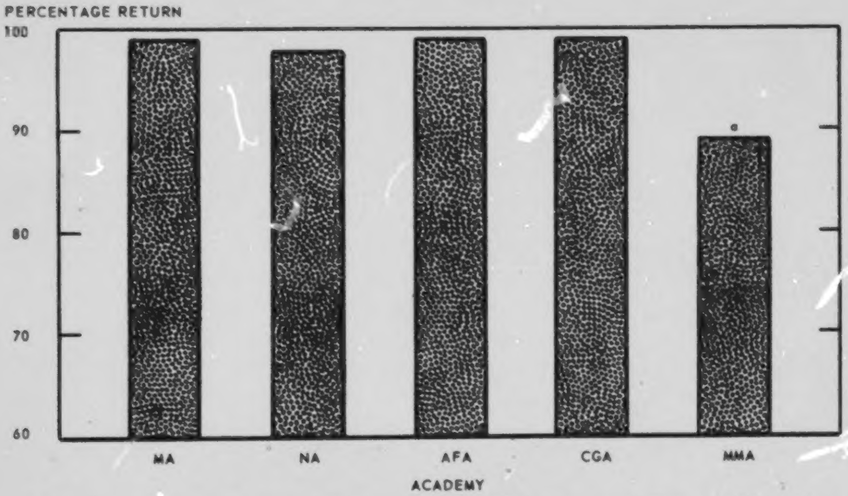
Proportion rated antagonistic	Number of times category checked
All	0
Most	3
About half	0
Some	8
A few	7
None	2

Special tests of responses provided by students to the questionnaire were conducted as an additional check on possible biases resulting from variances in conditions of administration. The results of these tests--described in detail later under the "position response bias" heading--indicated that any variances which may have affected responses were not so serious as to distort the results of analyses performed.

Almost all of the 13,430 students enrolled at the 5 academies on May 1, 1974, responded to the questionnaire--as can be see in Chart 2.

Chart 2

GAO QUESTIONNAIRE RETURN PERCENTAGES
CURRENT STUDENTS



[a] The lower return percentage at usmma is due to a mail administration for approximately 28 percent of the cadets on sea training during regular administration.

Confidentiality of the responses of these students was maintained by boxing the questionnaires immediately after administration and (1) storing the boxes in a secured room and (2) transporting them to a GAO regional office or shipping them immediately to the processing facility. No academy official, student, or employee had access to the questionnaires once they were completed.

Direct mail-out procedures

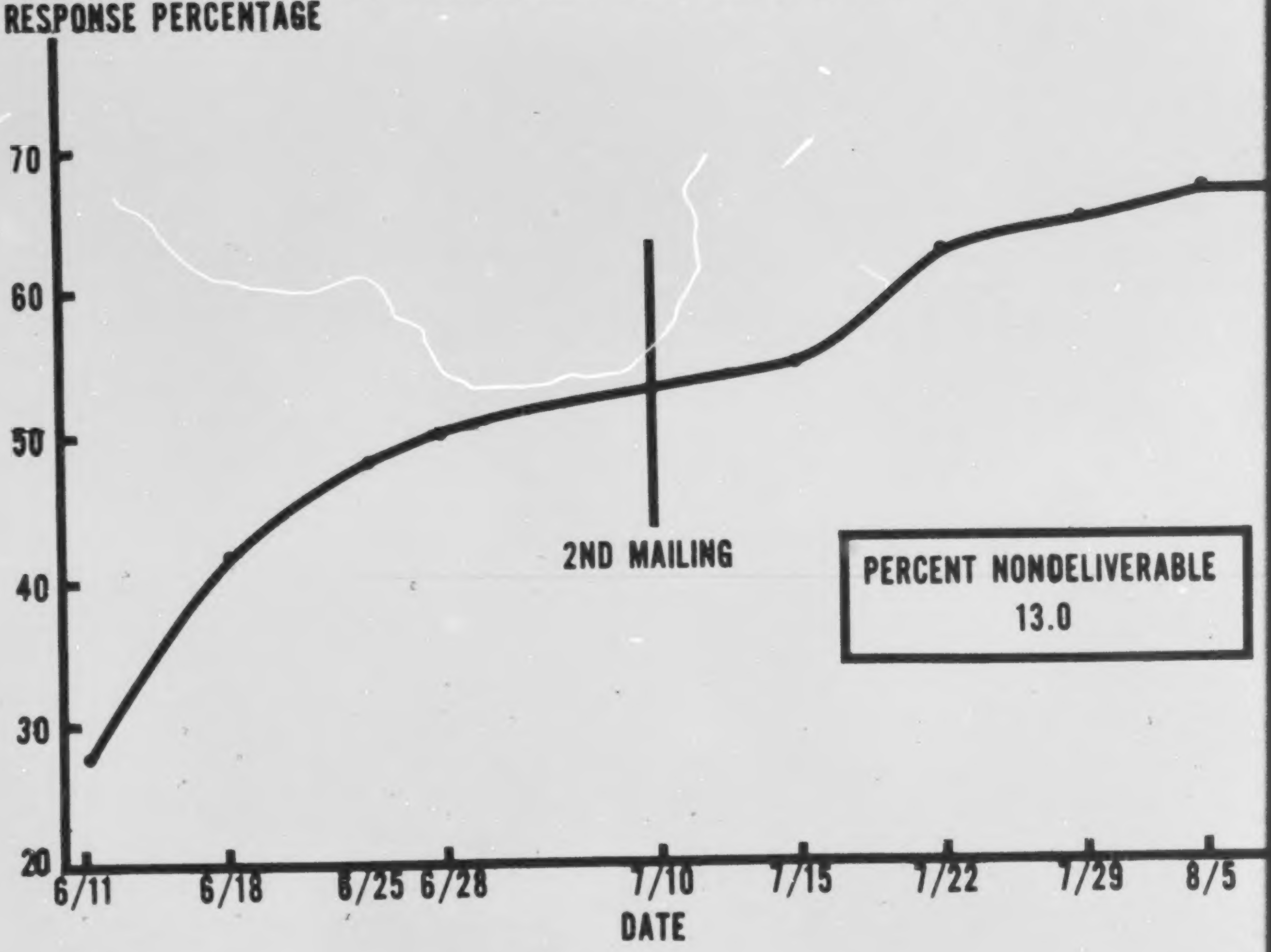
The direct mail-out procedures were initiated in mid-May 1974 with a package including the questionnaire, a transmittal letter, and a self-addressed postage-paid return envelope. Each transmittal accompanying the package for dropouts was individually typed, with the addressee's name included in the salutation, and individually signed. The transmittals for graduates were less formal and were mass produced. Approximately 10 days after the initial mailing, a postcard reminder was sent to all those in the mail-out sample. A second mailing of the questionnaire occurred approximately 4 to 6 weeks after the initial mailing. This second mailing was sent to all those who had not previously responded and for whom the post office had not indicated absence of a forwarding address.

The plots of dropout responses as a function of the length of time the questionnaire was in the field is shown in Graph 2. In total, 67 percent of approximately 7,300 students who had left the 5 academies between July 1970 and about May 1, 1974, responded to our survey. Factoring out the 13 percent of the questionnaires returned by the post office as nondeliverable yields a 77-percent return rate for those whom we were able to contact. There were some differences in response rates by academy, as well as a slight tendency for more responses from the recent dropouts. These trends are shown in Chart 3, in which the nondeliverables have not been factored out.

Of the 3,000 graduates of the class of 1973, 77 percent responded to our survey. Factoring out the 4.9 percent which were nondeliverable yields a response rate of 80 percent for this group. There was a pronounced tendency for graduates of the Air Force and Coast Guard Academies to respond more frequently than graduates of the other three academies.

Graph 2

DROPOUT COHORT QUESTIONNAIRE RESPONSE RATES



Graph 2

DROPOUT COHORT
QUESTIONNAIRE RESPONSE RATES

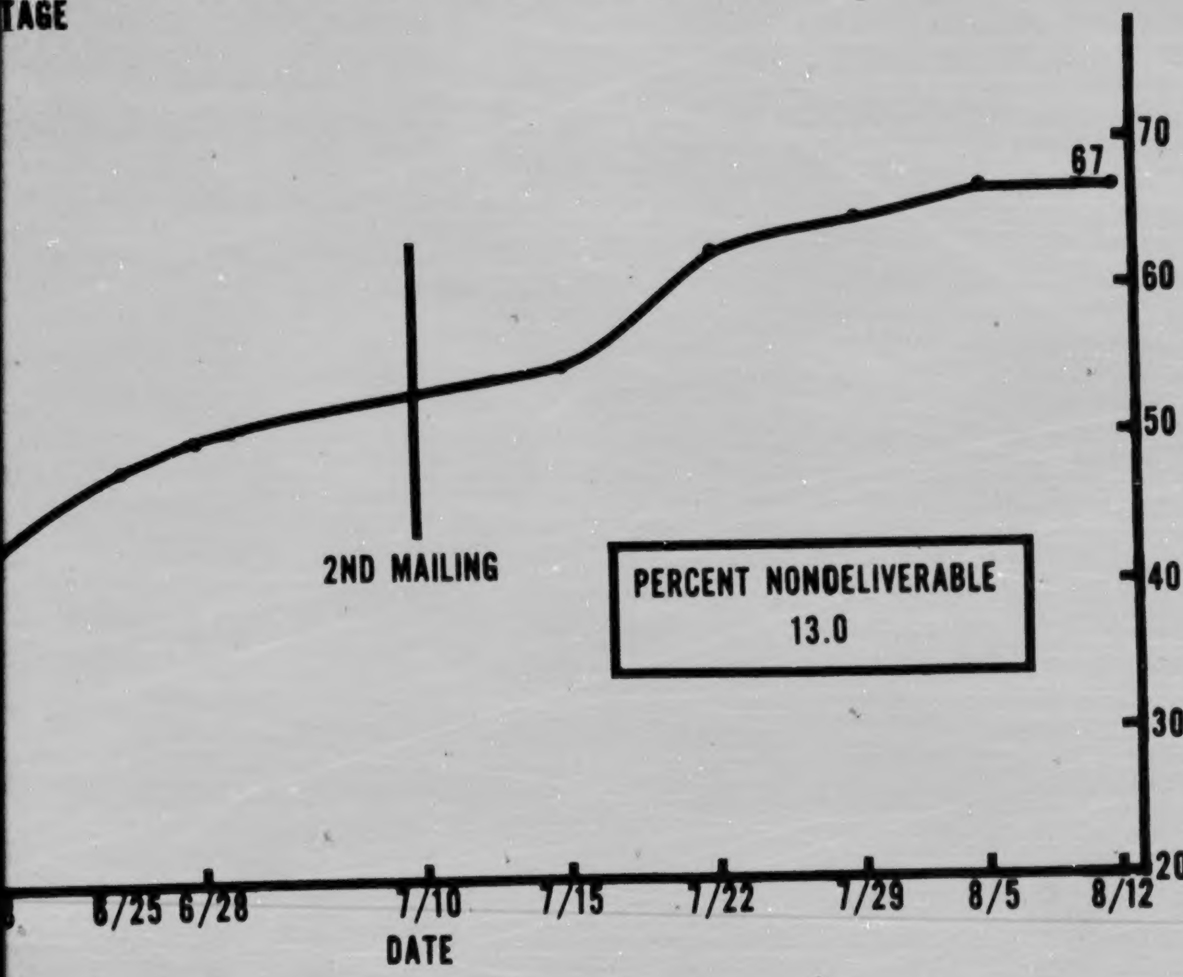


Chart 3

GAO QUESTIONNAIRE RETURN PERCENTAGES DROPOUTS

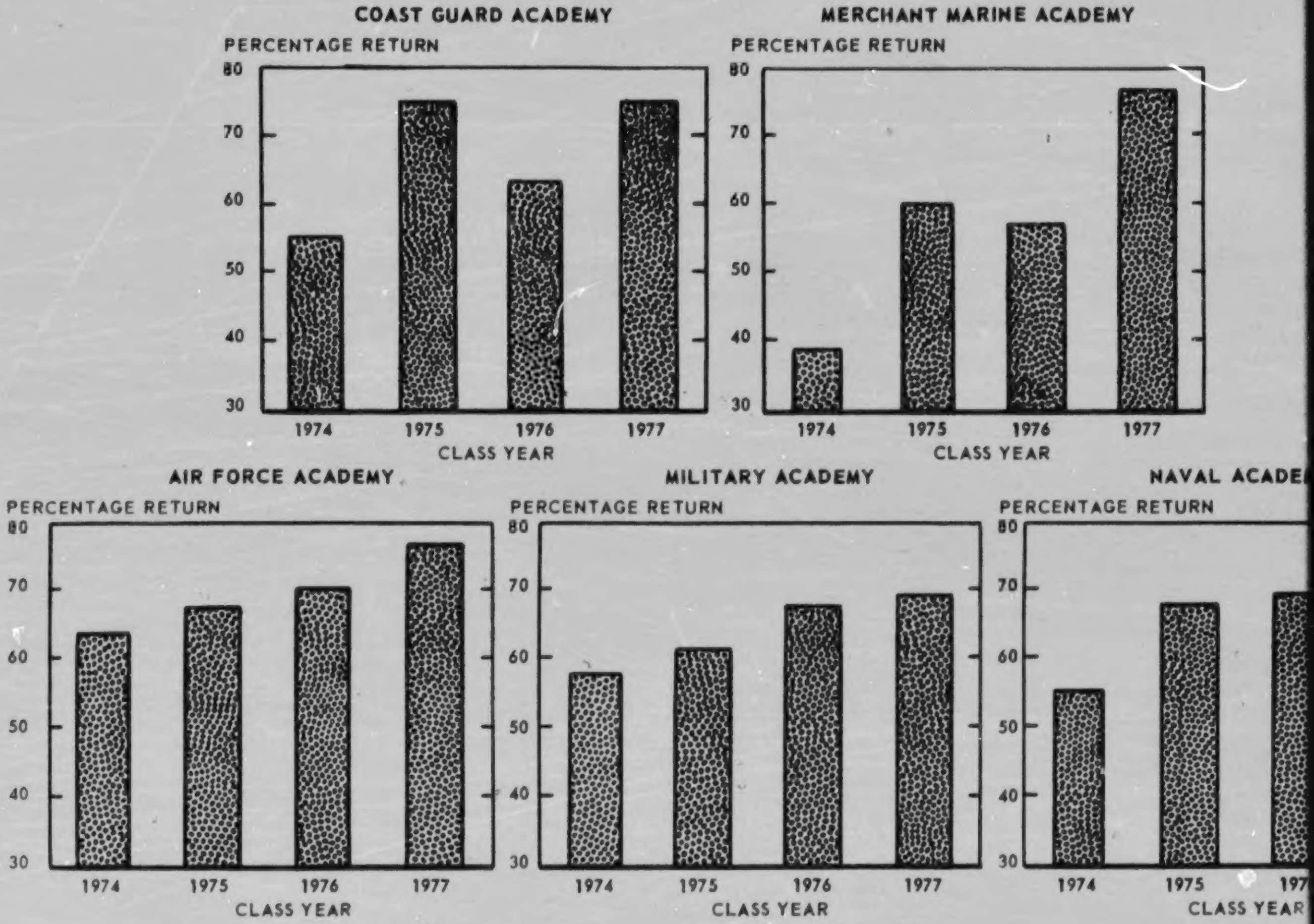
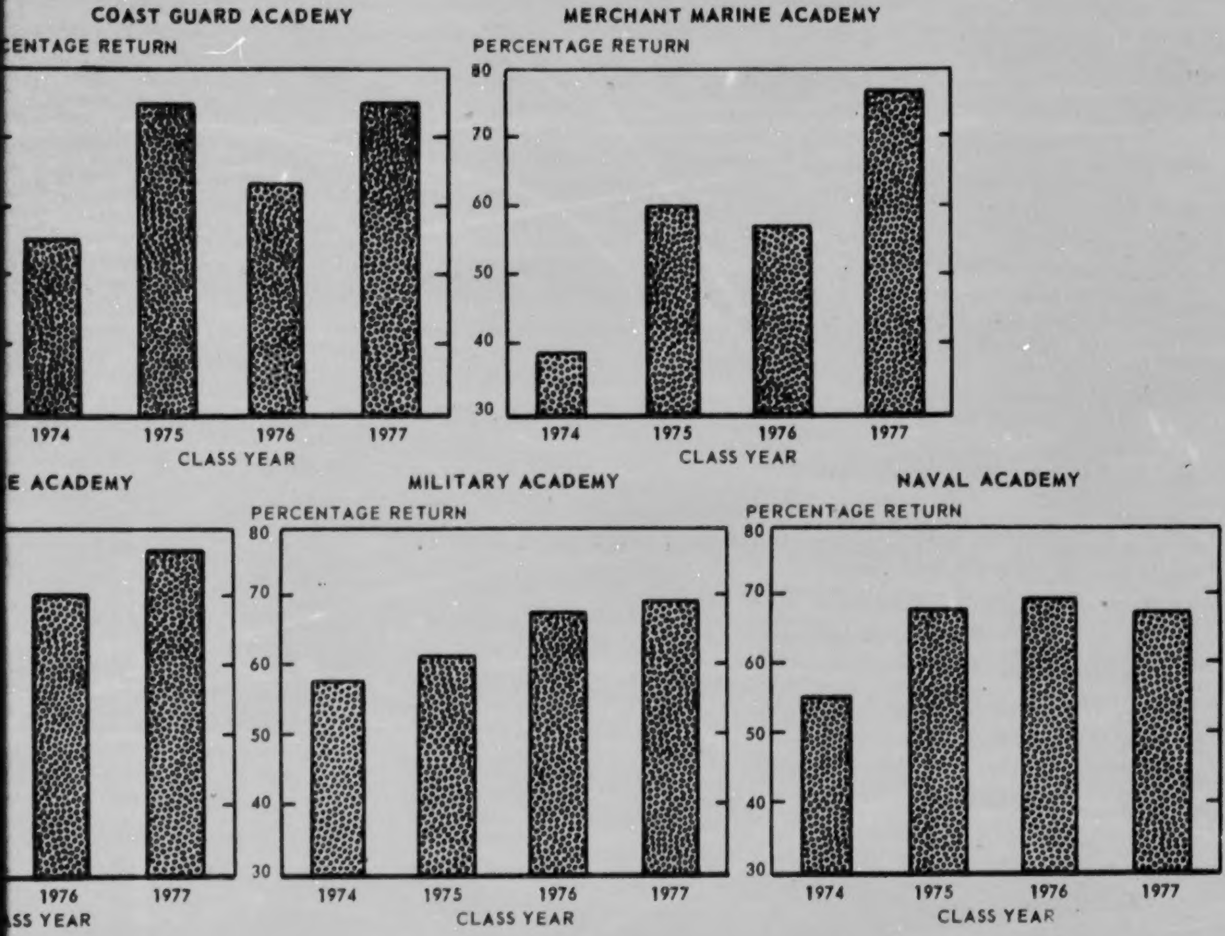


Chart 3

GAO QUESTIONNAIRE RETURN PERCENTAGES DROPOUTS



Confidentiality of responses by dropouts and graduates was insured by having the respondent mail his questionnaire directly to the data processing facility.

INTEGRATION OF DATA AND MAINTENANCE OF CONFIDENTIALITY

The most important feature of our confidentiality maintenance effort was a name-to-code-to-code linking system originally designed by the American Council on Education for assuring confidentiality in their longitudinal studies and described in detail elsewhere (Astin and Boroch, 1970). ACE was responsible for establishing and maintaining the linking system in our study. The procedures used consisted of assigning a unique five-digit identification number to each questionnaire which could be linked to a second identification number held throughout the study by ACE. This second number was linked in turn to a third number assigned each respondent during ACE's annual freshman survey and to a number used on coding sheets to record admissions data. After merging the various data by linking numbers, ACE furnished us with an integrated data tape on which there were no identification numbers. The linking process is depicted in Figure 2.

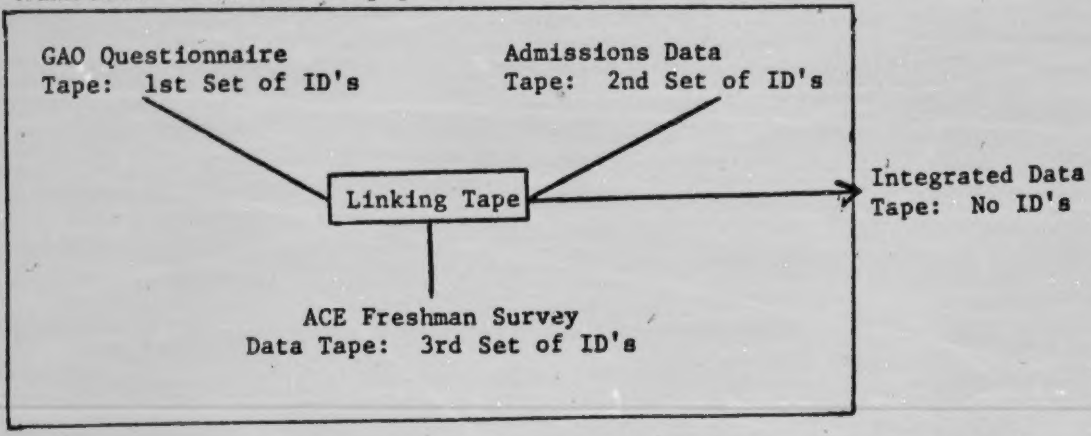


FIGURE 2. ACE link system for maintaining respondent confidentiality.

The number of records on the data tape used in subsequent analyses was smaller than the universe of dropouts, current students, and graduates for three reasons. In the first place, not everyone who entered the academies since July of 1970 responded to the ACE freshman survey--although a high percentage did (97.5 percent)--so a GAO-ACE questionnaire link was not possible for every case. The lack of complete response to the freshman survey was primarily due to the fact that by the time it was administered--within a two of the beginning of the first summer--a small number of students had already left. The second reason is that the number of linkages involved introduced the possibility of erroneous identification number assignment. Third, and most importantly, the integrated tape did not contain the records of dropouts who did not respond to our questionnaire. Nonetheless, a total of 82 percent of all those current students and dropouts in our survey appeared on the integrated tape, and it is on these students that the remainder of our preliminary analyses were conducted.[1]

ESTIMATION OF BIAS DUE TO NONRESPONSE TO GAO QUESTIONNAIRE

One point of particular concern to us in the direct mail-out administration to the dropouts was that only those with strong emotional feelings about an academy would respond and further that this group would not be representative of the entire group to which the questionnaire was mailed. This concern led us to contract with ACE for an estimate of the extent of bias in our dropout population due to nonresponse by some of those surveyed. After extensive investigation ACE concluded that, while the existence of bias could not definitely be ruled out, the evidence examined did not support a conclusion of sufficient bias to justify any attempts to correct for it. ACE's full report is included as Attachment VI and is summarized below.

The attempt to identify nonresponse bias centered around an examination of student characteristics at entry which might differentiate those who responded from those who did not respond and, therefore, might be used to develop compensatory weights to reduce the bias. Most of those characteristics were measures obtained from the ACE freshman survey; additional characteristics were obtained from academy admissions records. The specific variables used to measure student characteristics are listed in tabs A through D of Attachment VI.

The test for bias was done in a stepwise fashion. The initial, exploratory step consisted of calculating zero-order correlations between the variables in tab A and a criterion vector designating individual response or nonresponse. Those validity coefficients were then examined for significance, magnitude, consistency across samples, and plausibility. The sample sizes on which validities were calculated are summarized in Table I of Attachment VI. The number of significant validities within each sample and subsample at the 1- and 5-percent levels are shown in Table II. Since the number of validities examined per sample was approximately 100, the numbers were approximately percentages. Theoretically, by chance one expects 5 percent of the validities to be significant at the .05 level and 1 percent at the .01 level.

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[1] Data from graduates of the class of 1973 was not analyzed because ACE freshman survey data was not available for two of the academies. Moreover, as will be discussed later in this chapter, evidence was found that validity of the analytical results appeared to be inversely related to the length of time separating dropouts from their fellow cohort members who stayed.

The figures in Table II of Attachment VI are somewhat larger than expected from the sampling distribution of correlations. ACE cautioned that in interpreting these results it should be noted that (1) not all variables are experimentally independent, (2) many of the variables are dichotomous and markedly skewed, whereas the sampling theory is based on continuous, normal distributions, and (3) except within the smallest academy subsamples, the magnitudes of the significant validities rarely accounted for more than 1 or 2 percent of the response variance.

In view of these equivocal results, ACE gave special attention to the magnitude, patterns of consistency, and plausible interpretability of the significant validities. These are summarized in Table 3 of Attachment VI which shows considerable inconsistency across entry year samples and academy subsamples within years. Combined with the fact that only a very small amount of nonresponse bias can be detected with any confidence, this appeared to ACE to render moot any attempt to perform a common weighing correction across years and academies for respondent data on dropouts.

As a further step in testing the feasibility of weighing for bias, multiple regressions were performed on combined samples for each entry year. Academy-attended vectors were permitted to enter, but in no case did they--despite differences in response rates. Table 4 of Attachment VI summarizes the number of steps required to build a regression equation accounting for 5 percent of the variance and the percentage accounted for after 5, 10, and 15 steps. The results provide no further encouragement for weighing. ACE, therefore, concluded that, in view of indications of hetrogenity of regression results, across academy subsamples, it might be dangerous to weight on the basis of a combined regression, whereas differential corrections within year-by-academy subsamples would vastly elaborate the effort with doubtful weighting based on less stable systems.

TEST OF MEMORY BIAS IN RECALL ITEMS

To obtain measures of the attitudes, experiences, and characteristics of both dropouts and current students at comparable points in time, our survey relied heavily on respondent recall of his characteristics at entry and his feeling and experiences during certain points of his academy career. We recognized that such recall might be subject to memory bias resulting from subsequent experience which might have distorted recollection; however, we believed that it was better to imperfectly measure variables which might be important in causing attrition than to have no measure on them at all.

Recognizing the potential significance of the memory bias problem, we constructed a number of items in our questionnaire to parallel items contained in the ACE survey conducted at time of entry. Then, to the extent that high agreement in responses to the parallel items was obtained we would have some confidence that subsequent experience was not seriously distorting recollections. The estimates of the product-moment correlations between parallel ACE and GAO items concerned with high school accomplishments are shown in Table 4. The Phi/Phi max coefficient was used to estimate the correlation because it allows for variation in the base rate of responses to dichotomous items thus providing a measure of the intrinsic relationship between variables (Guilford, 1954). The size of the obtained correlations indicate little or no memory bias operating with items of this type, which is not surprising in view of previous research on the stability of responses to important life events on biographical inventories.

TABLE 4

ESTIMATES OF THE CORRELATION BETWEEN PARALLEL ACTIVITIES ITEMS: GAO MID-1974 SURVEY AND ACE SURVEY

Activity	Stability estimate by ACE survey year		
	1970	1971	1972
Received a high rating in a State or regional music contest	.86	.83	
Participated in a State or regional speech or debate contest	.83	.85	
Won a varsity letter (sports)	.94	.95	
Won a prize or award in an art competition	.75	.80	.74
Had poems, stories, or articles published	.92	.99	.96
Participated in a National Science Foundation summer program	.79	.77	
Placed in a State or regional science contest	.82	.77	
Was a member of a scholastic honor society	.96	.94	.98
Won a certificate of merit or letter of commendation in National Merit Program	.92	.88	

A second type of item on which we obtained stability estimates was self-ratings of personality characteristics. These ratings were obtained from the ACE survey of the class of 1975 conducted in July of 1971 using a five-point Likert scale. Recall estimates were obtained from the same class approximately 3 years later using our questionnaire. The correlations between the ratings are shown in Table 5. The average intercorrelation for the 20 ratings is .52 (Fischer's z-transformation). While these correlations are substantially lower than those obtained for the accomplishment items, they are still generally good in view of the restricted population on which they are computed, the ambiguity of some of the trait names used, the extremely long period over which the comparisons are made, and finally the fact that academy experience might be expected to affect the individual's standings on these traits--all factors which would serve to weaken the observed correlations.

TABLE 5

CORRELATIONS BETWEEN PARALLEL PERSONALITY RATINGS:
GAO MID-1974 SURVEY AND ACE JULY 1971 SURVEY

Personality trait	r	Personality trait	r
Academic ability	.52	Popularity	.53
Athletic ability	.68	Popularity (with opposite sex)	.57
Artistic ability	.67	Public speaking ability	.64
Cheerfulness	.49	Self-confidence (intellectual)	.39
Drive to achieve	.44	Self-confidence (social)	.50
Leadership ability	.49	Sensitivity to criticism	.22
Mathematical ability	.64	Stubbornness	.46
Mechanical ability	.60	Understanding of others	.36
Originality	.47	Writing ability	.57
Political conservatism	.47		
Political liberalism	.50		

By way of comparison to our results, Boruch and Creager (1972) have determined the stability of responses to the ACE freshman survey over a 2- to 3-week interval for a sample of 202 students from 3 Washington, D.C., area schools. Their results compare very favorably with ours, especially considering the large difference in intervals over which the two sets of correlations were computed. Selected tables from the Boruch and Creager report are included in Attachment VII. In brief, most of the reliabilities were close to 1 for demographic characteristics, family background, and high school achievements. Reliabilities for students' estimates of the probability of certain events occurring was a function of the event, ranging from .58 to .88.

Responses were unstable for "expecting to dropout of college permanently," but fairly stable (.82) for "transferring to another college." Attitudes about campus and social issues were less stable, ranging from a low of .48 for agreement with "colleges have the right to control the behavior of students off campus" to a high of .88 for agreement with "marijuana should be legalized."

It should be noted that to the extent memory bias exists it will produce error variance in our measures, thereby reducing reliability and validity (since validity cannot exceed the square root of reliability). Therefore, the crucial test of memory bias is in terms of whether the relevant questionnaire items have any correlation with attrition.

POSITION RESPONSE BIAS

To test for the effects of varying conditions of administration at each of the academies, a careful examination was made of current student responses to see if there was any tendency to provide the same responses to multiple items within a question. Twenty-seven questions were used to make this examination (shown in Attachment VIII with examples of what a position bias might look like). The test was performed on responses of the class of 1974 who were first classmen at the time of administration. Only 33 students at the 5 academies showed a position bias on 10 or more of the 27 questions. This number is quite low considering that a skipped question would have been counted as showing position bias (all items within the question answered the same way--blank!) and students were told that participation in the survey was voluntary.

The same position response test was performed on 4 of the ACE freshman survey questions and showed that 32 students had provided the same response to multiple parts of 2 questions.

On the basis of the small percentage of the total population which exhibited a position response tendency, we concluded that any effects of variances in administration conditions among the academies were so slight that they would not warrant cross-academy comparisons.

MISSING VALUES

In both the ACE questionnaire and our own, there were a few items skipped by some respondents. Additionally, complete admissions data was not available in academy records for every student included in our survey. For our questionnaire, there were 235 items for which an accurate count of nonresponse by current students could be made and 126 items for which a count of dropout nonresponse could be made. On 93 percent of the items, the extent of current student nonresponse was 1 percent or less while on 71 percent of the items the extent of dropout nonresponse was 1 percent or less (Table 6). Most importantly, for neither group did the nonresponse of any item exceed 3 percent. However, in view of the slight differences in the cumulative distributions of dropouts and current students, it was decided to substitute modal values for missing values in our questionnaire. Separate modal values by status, by academy, and by year of entry were substituted. While such substitutions generally act to weaken the intrinsic relationships between variables (Rummel, 1970), such weakening would be very minor in the present case because of the very small percentage of missing values and also because of the three way classification used to compute the modes.

TABLE 6

NUMBER AND PERCENTAGE OF GAO QUESTIONNAIRE ITEMS LEFT BLANK BY STATUS

	Current Students (N=235)		Dropouts (N=126)	
Percent nonresponse	Number of items at each percentage level	Cumulative percent at each level	Number of items at each percentage level	Cumulative percent at each level
0	52	22	24	19
1	166	93	66	71
2	13	99	34	98
3	4	100	2	100

For the ACE questionnaire there were 198 items used in 1 of the factor analyses to be described in a later chapter for which a nonresponse count could be made. As can be seen in Table 7, on 51 percent of the items current student nonresponse was 1 percent or less while 1 percent or less of the dropouts did not respond to 53 percent of the items. For neither group did the percent of nonresponse to any item exceed 7.1.

TABLE 7

NUMBER AND PERCENTAGE OF ACE QUESTIONNAIRE ITEMS LEFT BLANK BY STATUS

	Current Students		Dropouts	
Percent nonresponse	Number of items at each percentage level	Cumulative percentage at each level	Number of items at each percentage level	Cumulative percentage at each level
0	27	20	24	17
1	43	51	50	53
2	58	93	55	93
3	6	97	5	97
≥ 4	4	100	4	100

From the admissions offices at the three military academies we obtained 12 items of information on each student who had entered since 1970, while at the Coast Guard and Merchant Marine Academies we obtained 8 items of information. Whenever one or more of the bits of information was incomplete for a particular student or exceeded range parameters provided by academy officials, that case was considered in error. Less than 5 percent of the cases were in error at four of the five academies. About 14 percent of the records at the fifth academy were in error; however, most of these were localized to particular pieces of information which were not used in later analyses. Zero was substituted for every item in error.

CONSTRUCT VALIDITY

There are several accepted methods for assessing validity of a measuring instrument (American Psychological Association, 1974, Anastasi, 1968). What the psychometrician calls content validity and the social scientist might call ecological validity--that is, the extent to which the contents of the instrument cover a representative sample of the domain being measured (Anastasi, 1968)--is assessed judgmentally. We attempted to insure a high level of this type of validity by constructing our instrument and other measures in a systematic fashion: previous research on the phenomenon was consulted, a conceptual model developed, a taxonomy of student characteristics and academy life constructed by experts, and hypotheses were formulated and related to the conceptual model and the taxonomy. Following chapters on our detailed analysis will present evidence on the criterion-related validity of our instrument and measures. However, before beginning our detailed analysis, we attempted to assess the construct validity of our instrument.

As Helmstadter (1964, p. 134) has pointed out, the notion of construct validity derives from the idea that:

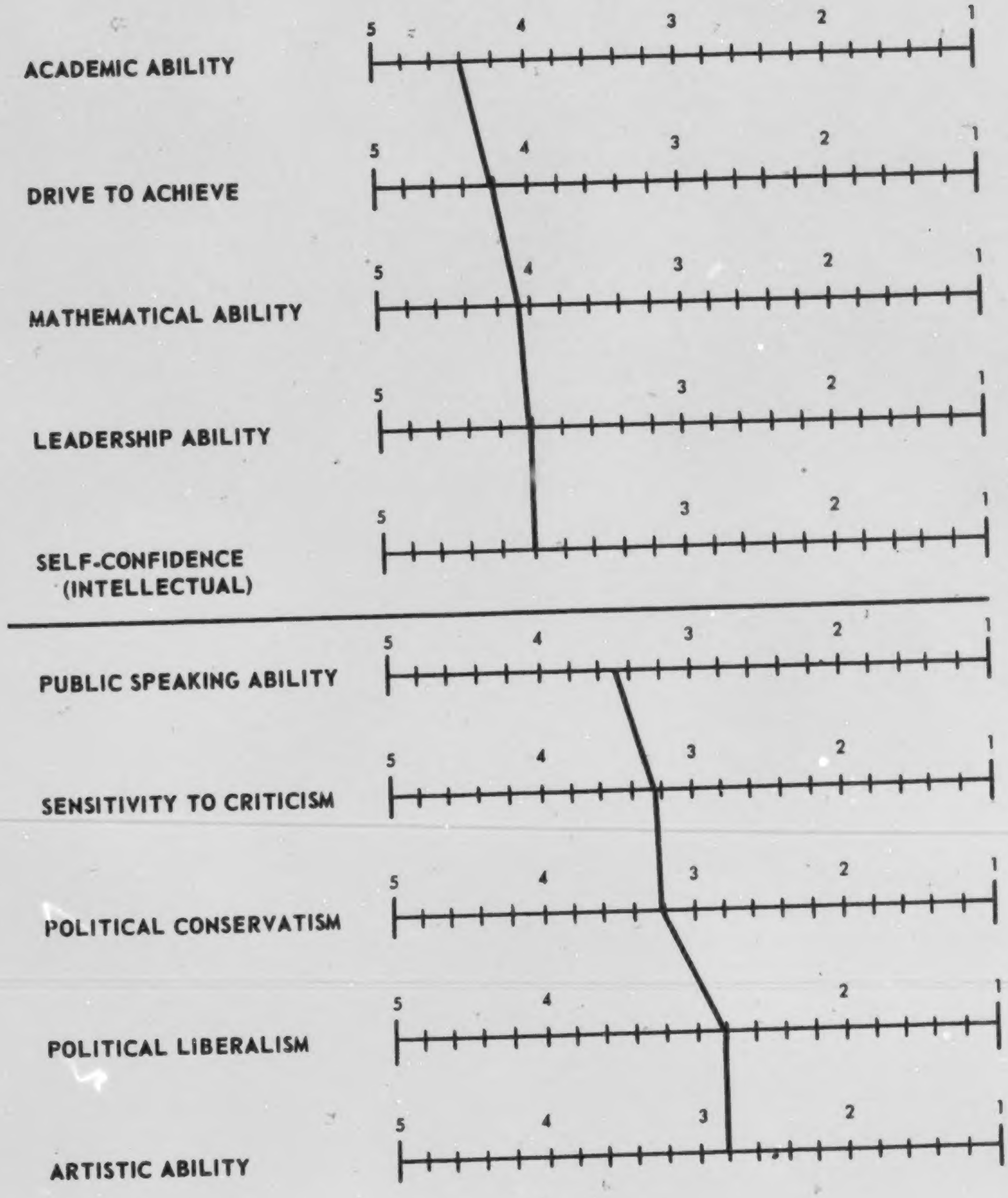
> All mental * * * traits which one might attempt to measure * * * are hypothetical constructs, each carrying with it a number of associated meanings relating how a person who possessed the specified traits would behave in certain situations.

In our preliminary analysis we examined the interrelationships among responses to a number of items by the class of 1974 at the academies to determine whether these interrelationships made sense in terms of what we knew about each academy and how we expected a person who possessed a specified trait would respond to other items.

The first item examined was concerned with self-ratings of personality traits at time of entry. Shown at the top of Graph 4 are the five traits on which students, on the average, rated themselves highest, at the bottom are the five on which they, on the average, rated themselves lowest. In view of the general high selectivity of the admissions procedures at the academies (both in terms of leadership potential and drive as well as academic aptitude), it is not surprising that students should perceive themselves as at least above average in relation to others their own age (4 on the scale of 1 to 5) in leadership ability and intellectual confidence and approaching the top 10 percent (5 on the scale) in academic and mathematical ability and drive to achieve. Conversely, it is also not surprising, in view of Cochran's

Graph 4

PERSONALITY SELF ASSESSMENTS
AVERAGE OF ALL ACADEMIES



(1972) research on political attitudes of Naval Academy students, to find that these students rate themselves slightly above the average (3 on the scale) in political conservatism and slightly below the average in political liberalism.

Examination of the matrix of 119 unique corelations among the 20 personality trait ratings showed that the highest intercorrelations were among the 10 items shown in Table 8. Again, these intercorrelations make good sense.

TABLE 8

HIGHEST INTERCORRELATIONS AMONG PERSONALITY SELF-ASSESSMENT ITEMS

	Mathematical ability	Political conservatism	Popularity with the opposite sex	Leadership ability
Academic ability	.47			
Political liberalism		-.74		
Popularity			.67	.44
Self-confidence (social)				.46
Drive to achieve				.44
Public speaking ability				.45

To the extent that one perceives himself as having a high degree of political conservatism, it would be expected that he would also perceive himself as having a low degree of political liberalism. The correlates of perceived leadership ability are those popularly held about characteristics of leaders.

The second item examined concerned reasons for attending the academy. A three-point scale was used in this item for rating the importance of 16 possible reasons for attending. The highest intercorrelations among the 16 reasons are shown in Table 9. Here again, the intercorrelations make good sense. For instance, those who felt that pay while attending the academy was important in their decision also felt that opportunity for tuition-free education was important.

TABLE 9

HIGHEST INTERCORRELATIONS AMONG "REASONS FOR ATTENDING" ITEMS

	Social prestige graduation offered	Wanted to serve my military obligation as an officer	Wanted to serve my country	Tuition-free education
Honor and prestige of an academy appointment	.53			
Felt it would help me attain high rank in the service		.42		
Emphasis on leadership training and physical development at academy			.45	
Pay while attending academy				.45

After examining several items in this fashion (including determining the internal consistency of items modified from other scales), we were sufficiently confident that our questionnaire items exhibited a reasonable degree of construct validity. Further support for this conclusion was obtained during the factor analyses, described later, where we obtained such results as

--an academic ability factor, loading items from our questionnaire about perceived academic and mathematical ability at entry, scores on standardized admissions tests, and ratings of the expectations of graduating with honors and being elected to an academic honor society obtained from the ACE questionnaire;

--an "environmental manning" factor on which size of the high school graduating class loaded positively and high school nonathletic activities loaded negatively thus fitting well into Roger Baker's (1968) ecological research on the effects of large and small schools.

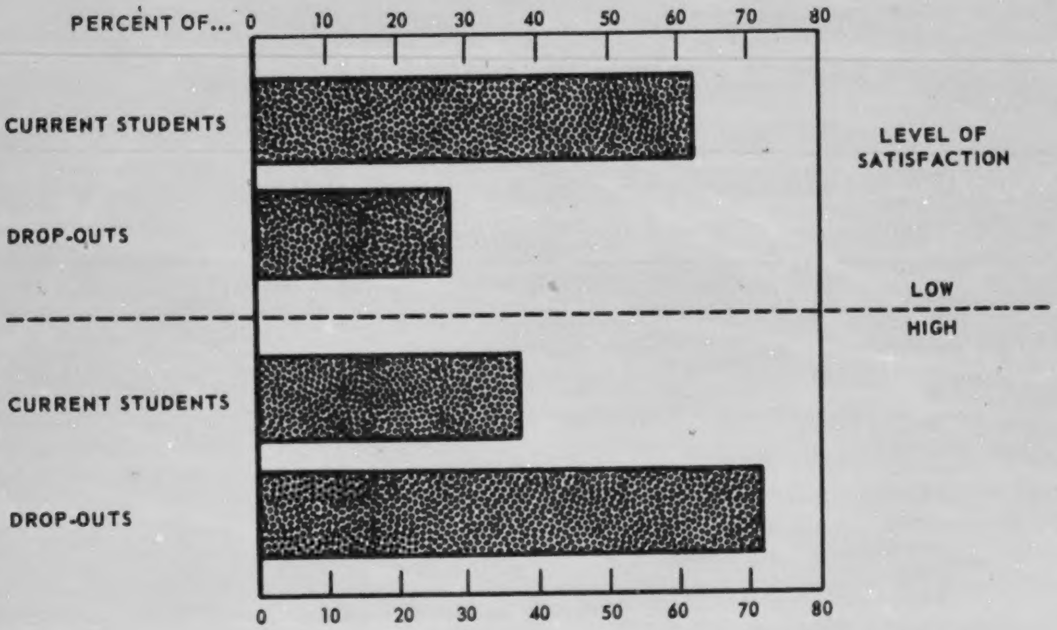
CURRENT STUDENT EXPERIENTIAL CONTAMINATION

The last step in the preliminary analysis process consisted of factor analyzing responses by the class of 1974 to several questions which had multiple parts and for which it was suspected that fewer dimensions could be used to describe the response space. The factor analysis procedures employed were the same as those used for our detailed analysis. (These procedures are described in detail in the next chapter.) For present purposes, the significant point is that the factor analysis produced anomalous results for several questions in terms of, sometimes, extensive research about correlates of voluntary withdrawal from organizations. For instance, Vroom (1964, 1969) has reviewed a large number of studies on the relationship between satisfaction and turnover in work organizations which consistently showed that those who were more dissatisfied tended to leave. However, we found just the opposite. As can be seen in Chart 4, a far greater percentage of those who stayed reported low satisfaction with academy leadership and student influence while a far greater percentage of the dropouts reported high satisfaction with this factor.

Chart 4

SATISFACTION WITH ACADEMY LEADERSHIP AND STUDENT INFLUENCE

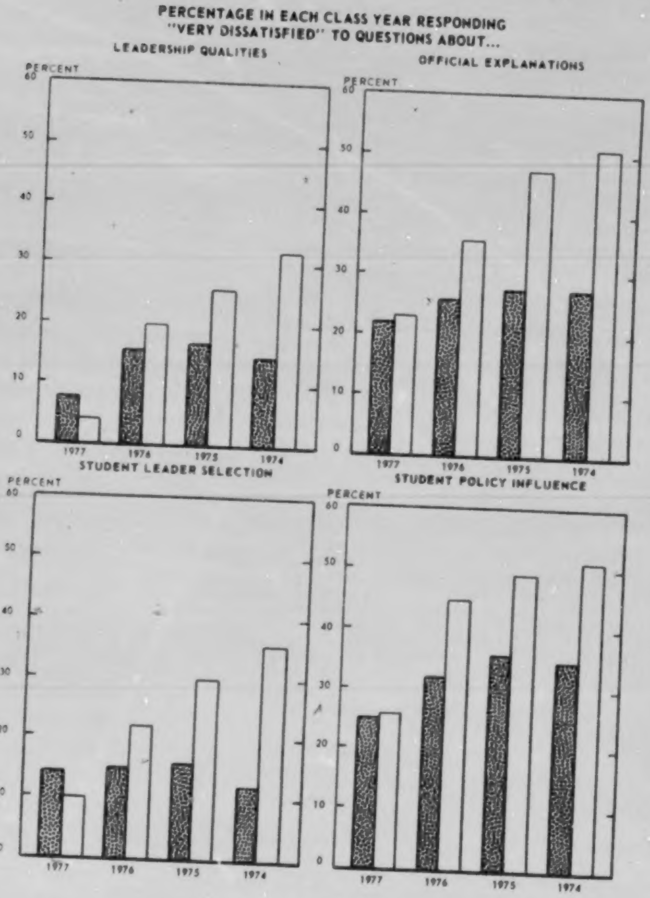
CLASSES OF 1974



Several explanations were offered for this anomalous finding. Perhaps the most reasonable is that it resulted from the method of combining dropouts with current students for the analysis. Current students of the class of 1974 were first-classmen within a month of graduation at the time of our survey. Dropouts, on the other hand, had for the most part left the academies during their first 2 years--as was shown on Graph 1. According to a number of academy officials, the experience of two to four more years of academy life by the current students would be sufficient to produce the results obtained because of increasing frustration of autonomy needs and of increasing familiarity with the basis of academy policy and procedures.

Some support for this experiential bias hypothesis can be inferred from Chart 5 which shows that differences between the current students and dropouts are either in the expected direction or insignificant for the class of 1977--which includes only fourth class dropouts and fourth class current students. The differences for the class of 1976--which includes third-class stayers and both fourth- and third-class dropouts--are small but in the unexpected direction. The size of these unexpected differences increases as the current students stay longer (classes of

Chart 5



1975 and 1974) while the dropout group remains relatively constant in terms of their experience (mostly dropouts from the first 2 years of each class).

We also examined the zero-order validities between other items in our questionnaire concerned with the academy environment and nonacademy factors, and we noted a general trend for them to increase, sometimes substantially, and occasionally to change sign, as a function of the length of time current students were at the academy.

As a result of these analyses, we decided to focus our study on two types of attrition. The first would be recent attrition--that is, attrition which occurred in the year of our survey or just before it--and would include examination of the environmental as well as the student correlates. The second focus would be on attrition from the class of 1974 and would be limited to student characteristic data collected before or just after entering the academy. We hoped to minimize experiential bias by such an analytical strategy.

CHAPTER 4

METHODS AND PROCEDURES

Upon completing the preliminary analysis, our task became one of making several decisions about how the detailed analysis of data should proceed. In making these decisions we sought and received extensive advice and counsel from the Joint Working Group on Academy Attrition. These decisions related primarily to how groups should be formed for analysis and the appropriateness of various statistical techniques for analyzing attrition within those groups. This chapter discusses how and why the analysis groups were formed, as well as the statistical techniques used to analyze attrition. It also presents intermediate results of the statistical analyses from which the appropriateness of the techniques might be judged.

FORMATION OF ANALYSIS GROUPS

The first major decision to be made with respect to the composition of analysis groups was whether the study should focus on attrition from academies in the aggregate or from each academy separately. We decided on the latter. The principal reasons for this decision were (1) the inequality of sample sizes at each of the academies and (2) known and presumed differences among the academies in terms of student characteristics at entry and important features of their environments. Had an aggregate analysis been done under these conditions, the results would have been typical for the larger academies--the Air Force, Military, and Naval Academies--whose classes contain about four times as many students as the Coast Guard and Merchant Marine Academies. However, they might not have been at all typical for these last two academies.

It was decided to separately analyze attrition at each academy also because the results of aggregate analysis would have been representative for a "typical" military academy. What little evidence existed at the beginning of our study indicated that interacademy differences were sufficiently great to call into question whether "typical" results would be representative of any academy. For instance, Astin (1971) had reported that both the Air Force and Naval Academies were more selective in applicant admissions than other academies. In addition, there have been recognized differences in the variety of courses offered and opportunities to pursue majors at these academies versus the others.

The next decision made was concerned with how the groups for the analysis of recent attrition within each academy should be formed. Previous research at two academies had shown that those who leave early are different from those who leave later. Spencer (1970) and Marron (1972) in studies of separate Military Academy classes found that students who leave in July or August of their fourth-class year are not committed to a military career while students who resign later in that year express an initially high commitment to military life. Sena and Westen (1970) found that those who left the Air Force Academy early have a significantly lower need for deference--but those who leave later have a higher need for deference--than their classmates who stayed.

Based on these differences in dropout characteristics as a function of time at an academy and based on the fact that 80 to 90 percent of attrition occurs during the first 2 years, it was decided that three different analysis groups would be formed to study recent attrition. The first group consisted of those members of the class of 1977 at each academy who dropped out or were separated between July 1 and September 30 of their first year at an academy--who returned our questionnaire--and their classmates enrolled at the time of our survey. Basic training is conducted at the academies during 2 months of this period. Dropouts through the month of September were included in this group for two reasons: we were told that (1) out-processing initiated toward the end of summer training might not be completed until sometime in September and (2) those who leave during the first days of academics probably do so because of their experiences during basic training. Hereafter, this group will be referred to as the 1st summer group. Sample sizes for the 1st summer analyses are shown in Table 9.

TABLE 9

SAMPLE SIZES FOR 1ST SUMMER ANALYSIS GROUPS

Status	Number at each academy				
	USAFA	USMA	USNA	USCGA	USMMA
Dropped or separated between July 1 and September 30, 1973	93	119	51	22	26
Current fourth classmen as of May 1, 1974	1124	1056	1155	295	238

The second analysis group consisted of those members of the class of 1977 who left between October 1, 1973, and April 30, 1974, and their classmates at the time of our survey. Hereafter, this will be referred to as the 4th class group. Sample sizes for this group are shown in Table 10.

TABLE 10

SAMPLE SIZES FOR THE 4TH CLASS
ANALYSIS GROUP

Status	Number at each academy				
	USAFA	USMA	USNA	USCGA	USMMA
Dropped or separated	73	49	73	21	27
Current	1124	1056	1155	295	238

The third analysis group consisted of those members of the class of 1975 who left between July 1, 1972, and September 1, 1973, and their classmates enrolled as of May 1974. This group thus consisted of those who left during the third-class academic year or the second-class summer, as well as those who were second-classmen at the time of our survey. It would have been preferable to use the class of 1976 for this group as it constituted the cohort of current third-classmen during our study. This class could not be used, however, because a substantial amount of attrition occurs in the summer between the end of the third-class year and the beginning of the second-class year, as can be seen in Table 11. Moreover, we suspected that early attrition had different motivational bases than later

TABLE 11

SAMPLE SIZES FOR POSSIBLE 3RD CLASS
ANALYSIS GROUPS

Academy	Status	Class year	
		1975	1976
USAFA	Dropped or separated	106	20
	Current	737	1019
USMA	Dropped or separated	86	29
	Current	760	884
USNA	Dropped or separated	138	86
	Current	728	854
USCGA	Dropped or separated	57	25
	Current	176	301

attrition, so data on an entire class was needed. The Merchant Marine Academy was not included in the 3rd class group because it did not begin participating in the ACE freshman survey program until 1973, and the cohort forming this analysis group entered in 1971. Thus a large amount of data on student characteristics at entry was not available for the Academy.

As mentioned earlier, we also decided to focus on the class of 1974 to examine solely the impact of student characteristics at entry on attrition. Again, each academy was analyzed separately. Unlike the recent attrition analysis, this attrition group consisted of all students who left the academies from the time they entered until the questionnaire administration in May 1974 and their classmates still enrolled at that time. Since the majority of information was obtained from the ACE freshman survey, the Merchant Marine Academy was again excluded from the analysis.

ANALYTICAL TECHNIQUES

Our questionnaire format provided for the analysis groups to describe their experiences while at the academies. Due to the varying lengths of those experiences, the analysis groups responded to different numbers of questions. Table 12 shows the number of questions from our instrument and the number of other data elements from the ACE freshman survey and the admissions records which were available for use in each analysis group.

Many of the variables on which we collected data tended to individually measure the same concept or different aspects of the same dimension. Thus, we believed it was desirable to reduce the number of variables to a smaller number of

TABLE 12

DATA ELEMENTS AVAILABLE FOR USE
IN EACH ANALYSIS GROUP

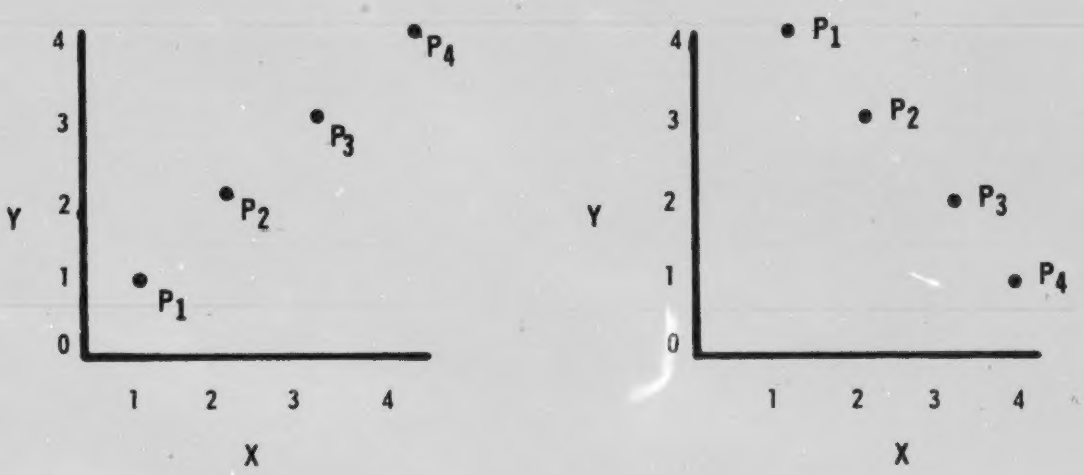
Analysis group	GAO questionnaire	ACE freshman survey	Admissions records	Total
1st summer	164	296	12	472
4th class	237	296	14	547
3rd class	255	360	14	629
Class of 1974	83	353	14	450

measures of those basic concepts and dimensions. By reducing the variables to their more basic dimensions, the reliability of the data would also be increased. Variable reduction was accomplished by factor analyses which will be described in the following section. Factor scores were then subjected to regression analyses in order to determine the relative contribution to variance in attrition of the student characteristics at entry, the academy environment, and non-academy events and conditions. Procedures used in the regression analyses and some general results will be discussed later in this chapter.

Both factor and regression analyses are based on an index of association between variables known as the correlation coefficient. Because this index and concepts related to it are so important to our discussions, the next section will introduce terminology generally used with correlational, factor, and regression analyses. Readers familiar with this terminology may wish to go directly to the sections which describe the mechanics and preliminary results of the factor and regression analyses used in this study. Unfamiliar readers who wish to have more detail than we can provide here are advised to consult texts such as those by Blalock (1972); Fruchter (1954); Nie, Hull, Jenkins, Steinbrenner, and Bent (1975); and Rummel (1970).

Notes on terminology

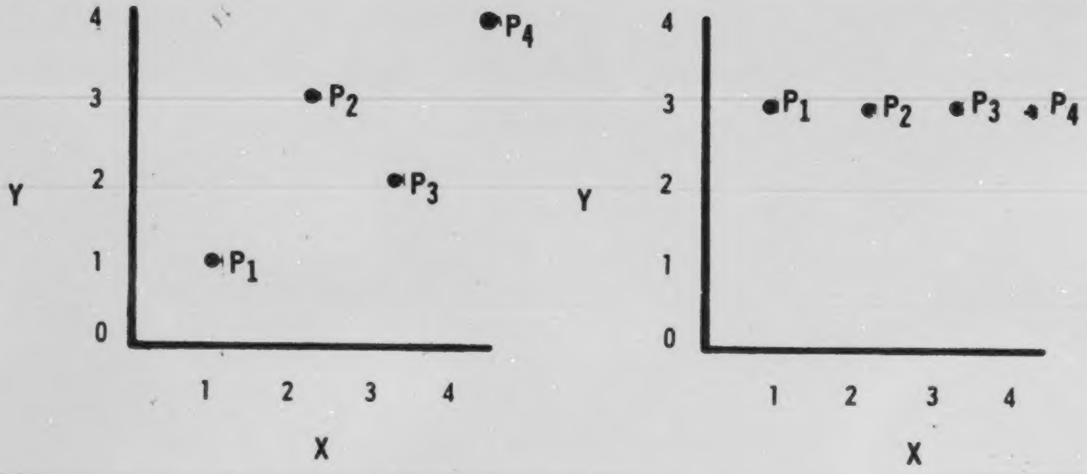
The correlation coefficient is a single number which describes the degree to which two variables are related. The degree of relationship is indicated by the magnitude of the coefficient, and, where there is a relationship, its nature is indicated by the sign which precedes the coefficient. For didactic purposes, the extreme cases may be used as examples. A +1.00 correlation indicates a perfect positive correlation between two variables. The magnitude of the coefficient means that the value of one can be predicted without error from knowledge of the value of the other variable. The sign of the coefficient means that as one variable increases or decreases in magnitude, the other will too--and since there is no error, the two will increase or decrease together without exception. This situation is depicted in Figure 3(a) where the dots represent the joint scores on variables X and Y obtained by four persons. Now, if the four persons are a random sample from a universe of interest, the situation depicted in Figure 3(a) tells us that for any new person randomly drawn from the universe, we (1) can exactly predict his Y score from knowledge of his X score--because of the magnitude of the correlation--and (2) would predict that the higher his X score, the higher his Y score--because of the + sign of the coefficient. The magnitude of a -1.00 correlation indicates, as before, perfect prediction of one score from another; but the sign indicates an inverse--or negative--relationship between those scores: that is, as the value of one score increases, the value of the other decreases or vice versa. This situation is depicted in Figure 3(b).



(a) r = +1.00 (b) r = -1.00

Figure 3. Examples of perfect correlations.

As the magnitude of the correlation coefficient becomes smaller, the errors in predicting one value from another increase (and incidentally, the situation becomes more like that typically found in behavioral science research) until at r = 0.00 there is no association at all between the variables and knowledge of one value is useless in predicting the value of the other. Examples of how these situations might arise are depicted in Figure 4.



r = +0.80

r = 0.00

Figure 4. Examples of more typical correlations.

When the researcher has an hypothesis about why the variables are associated, it is customary to refer to the Y--or ordinate--value as the dependent variable or criterion and to refer to the X--or abcissa--value as the independent variable or predictor. It is also customary in this situation to refer to the correlation (symbolized: r) between X and Y as the validity coefficient, or the validity of X as a predictor of Y.

Typically, the researcher finds that many values of Y are associated with the same value of X, as depicted in Figure 5. The problem is then one of determining a weight to be applied to the X values which will provide that prediction of the Y values which has the least possible error. The best solution to the problem is regression analysis. In regression analysis an attempt is made to find that line which when passed through the means of the various X values minimizes the sum of the squared deviations of the Y values from those means--or alternately, the variance of the criterion about the predictor means. The slope of this line (or the ratio of the extent to which Y increases with increases in X) is the best weight to be applied to the X values. When both X and Y have been subjected to certain mathematical transformations--that is, they have been standardized to unit variance and zero mean--this weight is called the beta weight and it is exactly equivalent to the correlation between X and Y. The goodness of fit of the regression line is determined by subtracting the square of the correlation coefficient (now symbolized: R^2) from the maximum value it could obtain (1.00). The difference is known as the coefficient of nondetermination and indicates the amount of variance in the criterion not explainable or predictable from knowledge of the independent variable. Conversely, the square of the correlation coefficient is known as the coefficient of determination and indicates the amount of variance in the criterion explained or predicted.

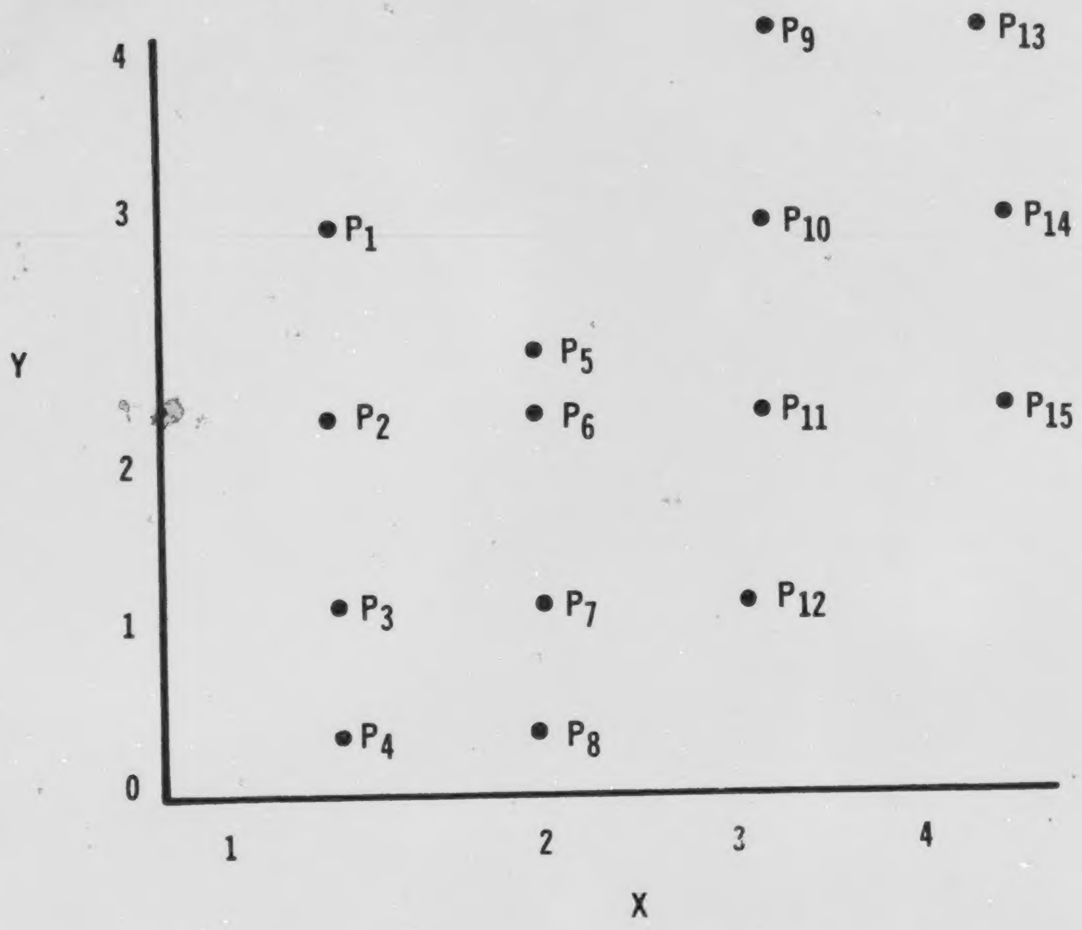


Figure 5. Example of multiple criterion scores for each level of an independent variable.

The concepts and terminology introduced for the simple two variable case--one dependent and one independent variable--can be generalized to the special case in this study where (1) there are X_a to X_n predictors each taking different values and (2) the criterion takes on only two values--staying and leaving. The reader interested in this extension--which is fairly complex--is advised to initially consult the texts cited earlier, and then more advanced texts.

The correlation coefficient is also the essential component in factor analysis, which differs from regression analysis in one major respect. Unlike the situation in which regression analysis is applicable, there is no explicitly specified dependent variable in factor analysis. Rather, there are a number of implicit dependent variables which represent the more basic dimensions--referred to as factors--measured by the independent variables. The purpose of factor analysis is to discover those underlying dimensions by manipulating the correlation coefficients. The extent to which these factors are identified is indicated by the amount of variance in the independent variables they explain. The extent to which any one independent variable is related to a factor is shown by the "loading" of that variable on the factor, where the "loading" is exactly equivalent to--and thus can be interpreted the same way as--the correlation between the variable and the factor.

These factor analytical terms and concepts are illustrated in Figure 6, which may be taken to show the loadings of six items on a factor they are measuring in common. Examination of the figure shows, for example, that the loading of item 4 on the factor, or its correlation with the factor, is 0.8 and the square of this loading is the portion of variance in the item held in common with the factor. The purpose of factor analysis is to identify the minimum number of factors which share the largest percentage of variance with the independent variables. Once these factors are identified it is typical in behavioral science research to perform mathematical manipulations on the matrix of loadings which represent them so that more stable and easily interpretable factors are produced. There are a number of such manipulations possible. The one we chose was designed to produce uncorrelated factors so that the contributions to attrition of student characteristics, the academy environment, and nonacademy factors might eventually be more easily interpreted.

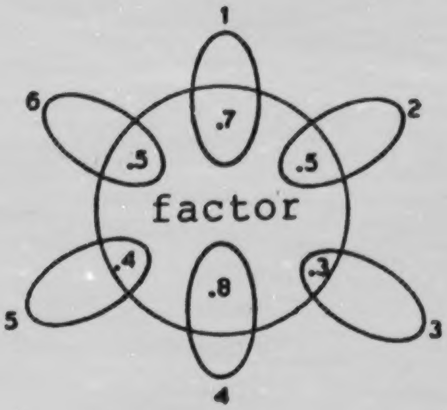


Figure 6. Loadings of six items on a factor.

Factor analysis is a group of mathematical procedures which are much more complex and debatable than regression analysis. We, therefore, advise the unfamiliar reader, with questions about our use of the procedures, not only to consult the cited texts but to consult researchers who have frequently used factor analysis as a data reduction technique.

Factor analysis procedures and results

The Biomedical Computer Program BMDO8M (Dixon, 1973) was chosen to accomplish the factor analysis. The program allows input of 198 variables and will extract a maximum of 99 factors. As can be seen in Table 12, the limitation on the number of input variables was exceeded in all of the analysis groups. Therefore, it was necessary to reduce the number of variables to 198 in the analysis groups.

A two step procedure was used to reduce the number of variables to enter the factor analysis. The first step consisted of excluding from consideration ACE freshman survey questions which (1) were not asked every year from 1970 to 1973 or (2) were concerned with the student's college major preferences, his occupational preferences, and his father's and mother's occupation. These exclusions brought the number of ACE data elements down to 77.

The next step consisted of correlating the remaining variables with the criterion measure, rank ordering those correlations, and choosing the 198 highest to enter the factor analysis. This step resulted in factor analyzing variables for the Air Force Academy's third-class year--for instance--whose validity ranged from .02 to .31.

The variables that were to be factored were subjected to an orthogonal rotation to a varimax criterion. The orthogonal rotation was chosen to get independent factor variables so the contributions of entry characteristics and environmental variables could be easily measured. The varimax criterion was used to simplify the columns of the factor matrix. This criterion forces variables to load more highly on one factor instead of being loaded on many factors at about the same level. In order to improve factor definition, a large number of iterations was specified to produce the initial factor matrix; however, in most cases only 5 to 10 iterations were required. The diagonal elements of the correlation matrix were replaced by the squared multiple correlation coefficients, and a minimum eigenvalue of 1.0 was specified for factor extraction. Factor scores were then computed for each student using all variables in the analysis. These factor scores were used as independent variables to explain the attrition phenomenon in later analyses.

Factor analysis results

Table 13 presents for the current attrition analysis the sample sizes, the number of variables used in each factor analysis, the number of factors extracted, and the amount of variance in the data explained by the factors for each academy and analysis group.

TABLE 13

FACTOR ANALYSIS SUMMARY--RECENT ATTRITION

1st summer	USAFA	USMA	USNA	USCGA	USMMA
Sample sizes	1217	1175	1206	317	264
Number of variables used	197	194	197	193	193
Number of factors extracted	23	25	24	37	39
Percent of variance explained	32	33	33	49	52
4th class					
Sample sizes	1197	1105	1228	316	265
Number of variables used	190	188	190	189	190
Number of factors extracted	22	24	23	35	40
Percent of variance explained	30	31	31	46	53

3rd class

Sample sizes	843	846	866	233	NA
Number of variables used	197	197	197	197	NA
Number of factors extracted	27	26	27	44	NA
Percent of variance explained	36	36	35	58	NA

Factor interpretations were based on variable loadings on the factors. In determining which variables loaded on the factors, we used a minimum criterion of .30 in most cases. With some factors, which were not well defined, we lowered the minimum loading to .20 for better factor definition. Those variables that tended to dominate the factor also dominated our interpretation of the factor. As expected, we found factors that were common to all academies and some that were unique to a particular academy.

Factor tables containing the specific results of our analyses are included in attachment IX. The tables are organized, initially, by time of attrition (first summer, fourth class, and third class). Within time frames, those factors relating to student characteristics at entry are presented first, followed by academy environment factors, and then nonacademy factors. Those factors judged common to all academies are presented first within each of the previously mentioned classes. Finally, each table shows the names of variables loading above the criterion of .30 (or .20) on the factor, the size of the loading, the validities of the variables and the factor, and the order in which the factor emerged from the analysis.

Those variables not highly loaded on any of the factors were examined to determine if they were independent of the factors. For each variable that was not "loaded" on a factor, the loading criterion was lowered to .10, and a determination was made as to how many factors the variable was loaded on, what factor had the highest loading, and the size of the loading on that factor. In almost all cases these variables were loaded on several factors. For variables that were not loaded on several factors, the variable correlation with the criterion was examined. It was decided that variables whose correlation with the criterion was not .15 or above would not be considered. This decision was based on the relative reliability of single items versus factor variables. The result of this analysis was that only two variables turned out to be independent of the factors. These were for the Air Force Academy's 3rd class group. They were (1) the effect of national economic conditions on staying and (2) the effect of the obligation to perform enlisted service after resigning from the academy during the last two years.

Accuracy of factor scores

Since multiple correlations were used to compute factor scores, these scores may depart from the true factor scores. We therefore examined the extent of this departure as indicated by the size of the standard deviations of the factor scores for the three major military academies for the three time frames. Harmon (1967) has previously shown that the correlation between computed and true factor scores is equal to the standard deviations of the common factor scores. Table 14 presents the results of our analysis.

TABLE 14

SUMMARY OF THE CORRELATION BETWEEN COMPUTED AND TRUE FACTOR SCORES

Range of correlation	USAFA 1st summer	USAFA 4th class	USAFA 3rd class	USMA 1st summer	USMA 4th class	USMA 3rd class	USNA 1st summer	USNA 4th class	USNA 3rd class	Total
<.80	1	1						1		3
.80 to<.85	7	7	5	7	9	9	8	9	7	68
.85 to<.90	9	8	16	11	11	8	10	8	9	90
.90 to<.95	5	6	5	4	1	9	5	3	10	48
≥.95	1		1	3	3		1	2	1	12
Total	23	22	27	25	24	26	24	23	27	221

The above table clearly shows that there are very high levels of agreement between computed and true factor scores. Also, the correlations in the above table are deflated due to negative eigenvalues.

Since it is possible to find different factor score matrices from the same set of data, it is necessary to examine the uniqueness of the factor scores. Rummel (1970) shows the following equation for estimating the uniqueness of factor score estimates

$$r_{min} = 2r^2 - 1$$

where r_{min} is the minimum correlation between the computed and maximally different factor scores and r is the correlation between the computed and true factor scores. Now, table 15 can be developed to show the relationship between r_{min} and r.

Table 15

RELATIONSHIP BETWEEN R_{MIN} AND R

R	R_{MIN}
.800	.28
.825	.36
.875	.53
.925	.71
.975	.90
1.000	1.000

A comparison of Tables 14 and 15 shows that the factor scores developed for this study are unique. Thus, there is no reason to employ component factor analysis instead of the common factor model.

Problems encountered in the factor analysis

It should be noted that two problems were encountered in the factor analysis. While we do not believe these represented serious analytical deficiencies (for reasons later discussed), they may have slightly attenuated the validity of our factor scores. In this sense our results are conservative estimates of the relative contribution to attrition variance accounted for by the factor scores.

The first problem involved the eigenvalues--which represent the total contribution of factors to the total variance of all variables in the factor analysis (Van de Geer, 1970). Although theoretically impossible, negative eigenvalues were encountered during the analysis. The negative eigenvalues generally occur at about the 100th principal factor. There seem to us to be three possible reasons for this anamoly. The first, and to us most probable reason, was suggested by programing experts at the Health Sciences Computing Facility of the University of California at Los Angeles who thought this problem might have been caused by rounding errors due to the single precision arithmetic of the computer program and the large number of iterations used to produce the initial factor matrix.

A second possible cause of the negative eigenvalues may have been the missing data in the ACE freshman survey (Rummel, 1970). However, we believe this contributed little to the extraction of negative eigenvalues because missing data was not extensive in the ACE survey and because--at most--only 77 of the 198 variables factored were from that survey.

The third possible reason for the negative eigenvalues is that the squared multiple correlations underestimated commonality. This possibility seems to us remote since, as Rummel (1970) has pointed out, the consequences of employing squared multiple correlations estimates appear to be an inverse function of the number of variables factored.

The second problem encountered in the analysis involved the method of computing factor scores. As previously mentioned, factor scores were computed for each student based upon all variables used in the analysis regardless of the variable loading on the factor. This method of computing factor scores was chosen as a matter of expediency--the computer program provided the factor scores automatically. The choice of expediency did, however, cause two problems. First the correlation of the factor score with the criterion was in some cases lower than would be expected based upon the variable loadings on the factor and the variable correlations with the criterion. Second, in some cases we were unable to interpret the factor score correlation with the criterion when viewed in light of the variable loadings which defined the factor.

Some members of the Study Group had suggested that we compute new factor variables based solely on those variables loaded on the factor. This procedure would tend to bring the factor correlation closer to the individual variable correlations. Although a highly desirable suggestion, it was one that was too time consuming and could not be implemented. We did, however, compute factor scores for the Military Academy's first summer group which were based solely upon the variables loaded on the factors. These factor scores were computed by simply summing the variables loaded at .30 on each factor then correlating the resultant sum with the computer-generated factor score. For most factors we got very good agreement, as Table 17 shows. We were unable to compute a score for factor 1, and, thus, Table 16 shows 24 factor correlations instead of 25.

TABLE 16

CORRELATION BETWEEN COMPUTER GENERATED AND UNIT WEIGHTED FACTOR SCORES--USMA, 1ST SUMMER ANALYSIS GROUP

Correlation	Number	%
>.90	7	29
.80 to<.90	10	42
.70 to<.80	3	12
.60 to<.70	2	9
.50 to<.60	1	4
.40 to<.50	1	4

The regression analysis

To determine which factors were related to the attrition phenomenon, we used a standard stepwise multiple regression program. For the regression analyses, we used the Biomedical Computer Program BMD02R (Dixon, 1973). In all regression analyses we used an F-to-enter of 3.80 and an F-to-remove of 3.00. These Fs correspond to probability levels of slightly under .95 and over .90 for the Air Force, Military, and Naval Academies. Because of the smaller sample sizes for the Coast Guard and Merchant Marine Academies, a variable or factor had to have a probability of statistical significance slightly greater than .975 or had to measure a concept similar to a variable that has a correlation of at least .13 before we considered the variable or factor to be of practical significance.

The final step in the analysis procedure was to determine the possible shrinkage in the amount of variance accounted for by variables the regression program selected as related to attrition. Some shrinkage in the coefficient of multiple determination is, of course, always expected because the regression technique capitalizes on chance as well as valid variance shared between the individual predictors and the criterion. In order to examine the shrinkage, each of the current analysis groups were randomly halved, and new regression equations were computed for each half sample. The procedure followed was to use the regression equation developed in one half sample, apply the equation to the other half sample, compute the expected criterion score, and correlate that expected score with the actual criterion score. In most analysis groups the shrinkage was minimal--as can be seen in Table 17. In the 2 instances out of 14 where shrinkage was substantial, it should be remembered that the sample sizes are small.

Table 17

SAMPLE SIZES, MULTIPLE AND SHRUNKEN,
AND MULTIPLE CORRELATION COEFFICIENTS
FOR REGRESSION ANALYSES

1st summer	USAFA	USMA	USNA	USCGA	USMMA
Sample size	1217	1175	1206	317	264
Multiple R--whole sample	.48	.52	.41	.51	.59
Average R--two half samples	.42	.40	.36	.32	.09

4th class	USAFA	USMA	USNA	USCGA	USMMA
Sample size	1197	1105	1228	316	265
Multiple R--whole sample	.41	.39	.43	.49	.64
Average R--two half samples	.33	.30	.34	.14	.32
3rd class					
Sample size	843	846	866	233	N/A
Multiple R--whole sample	.62	.63	.64	.78	
Average R--two half samples	.56	.54	.57	.49	

It should be noted that our ability to account for attrition variance--as shown by the coefficients in Table 18--may be seriously underestimated for the 1st summer and 4th class groups. This attenuation results from the fact that a good deal of attrition is still to occur from the current students in these analysis groups. To the extent that these current students who will eventually leave report characteristics at entry or environmental experience similar to those who have already left, the true differences between reports of dropouts and current students will be underestimated.

Despite the possible underestimates resulting from the methods of data analysis and of analysis group formation chosen, we believe that there is sufficient commonality of results among the academies, appropriate uniqueness to some of those results, and a close enough fit between our study and previous academy studies to indicate that we have identified some of the major factors related to attrition at the five academies.

CHAPTER 5

RESULTS

In his book "Science and Human Values," Jacob Bronowski (1956) relates a fable credited to Professor Karl Popper about a man who spends his adult life recording what he sees in notebooks. At his death, these great volumes are willed to the Royal Society for study to advance science and mankind. But Fellows of the Society never open the notebooks. The detail they contain is too overwhelming, and, being nothing more than raw sense-impressions, the detail is too chaotic to be of any benefit. The final results of our regression analyses were similar to the man's notebooks. In all, we computed 18 separate regression equations--1 for each analysis group. An average of 14 variables were selected in each equation; so that, a total of about 250 variables were found to be related to attrition in all of the analysis groups.

METHODS USED TO INTERPRET RESULTS

A two-step procedure was chosen to make sense of all this data and to communicate it in a policy-making context. The first step consisted of putting the regression results into a chart showing the amount of attrition variance due to the separate components of the conceptual model shown in Chapter 1 of this enclosure. The basis of assignment of factors to components of the model is shown in Attachment X. The basis used differs little from that outlined in a tentative plan (Harper and Rogers, 1974) for assigning our questionnaire items to components of the model which had earlier been reviewed without criticism by academy and executive agency members of the Joint Working Group. After the assignments had been made, the validity of each factor in a category was squared and the squared validities of all factors in that category were summed. The sum of the squared validities for each category was then taken to represent the amount of attrition variance "explained by" the component of the model.[1]

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[1] It should be noted that the sum of the squared validities of uncorrelated variables is exactly equivalent to the coefficient of multiple determination (or R^2). Furthermore, the squares of these validities are a measure of the importance or usefulness of the variables in accounting for or explaining criterion variance. As has been shown by Darlington (1968):

> $R^2 = \rho_{01}^2 + \rho_{02}^2 + \ldots + \rho_{0j}^2$ where R^2 is the amount of criterion variance accounted for by a least squares combination of predictor variables and $\rho_{01}^2 \ldots \rho_{0j}^2$ are estimates of the correlations between 1 to j standardized predictors and the criterion when the predictor variables are uncorrelated. The usefulness of any predictor, j, is an exact function of ρ_{0j}^2 since removal of that predictor will result in a reduction of R^2 equal to the magnitude of ρ_{0j}^2.

Our factor analysis produced variables which were uncorrelated--or nearly so within the sampling error of the correlation coefficient. For instance, among the 299 unique intercorrelations for the 25 factors extracted for the Military Academy's 1st summer group, the expectation is that 15 of these would be statistically significant at the .05 level just by chance. We found 20 to be significantly related and most of these were intercorrelations between the first factor extracted--a general factor--and other more specific measures. On the other hand, for the Coast Guard Academy's 4th class group--where there was no general first factor--there were no intercorrelations significant at the .05 level. Therefore, the importance of our factors has been directly interpreted from the square of their correlations with the attrition criterion.

The second step in the procedure used to make sense of the data and to communicate it was to search through the tables of validities in Attachment X for factors which were the most important at the largest number of academies during each of the current attrition time frames. Factors identified from this search then became topics for intensive investigation and reporting to the Congress.

An attempt was made in the main report to present results of our study and other studies in a nonscientific fashion[1] which could be understood by a lay reader. The remainder of this chapter will parallel Chapter 4 of the main report by presenting these results in a more complete and scientific fashion. It is our hope that this chapter will be useful as a bridge between the findings and conclusions presented in the main report and (1) studies the academies have done related to attrition which are reported in Enclosure B, (2) results of our study which are completely reported in Attachment IX to this enclosure, and (3) what we consider to be the most relevant social and psychological research which is referenced in this chapter.

SOURCES OF ATTRITION

The outstanding impression obtained from analysis of our survey data is the relative importance of academy environment factors in accounting for the variance in attrition at certain points during academy life. As is indicated by Chart 6--which indicates the amount of attrition assigned to each component of our conceptual model--the importance of academy factors increases dramatically and consistently as classes progress through the academies. The amount of attrition attributed to environmental factors in Chart 6 varies from a low of 1 percent at the Air Force Academy during the first summer to a high of 39 percent at the Coast Guard Academy during the third-class year. For all academies in general, about 5 percent of the first summer attrition is attributable to academy environment factors, while about 14 percent is attributable to the same factors during the fourth-class year and about 35 percent is attributable to those factors during the third-class year.

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[1] Without extensive use of jargon, specific citations to other empirical research bearing on the findings, or extensive presentation of the data from which findings were developed.

Chart 6

SOURCES OF ATTRITION

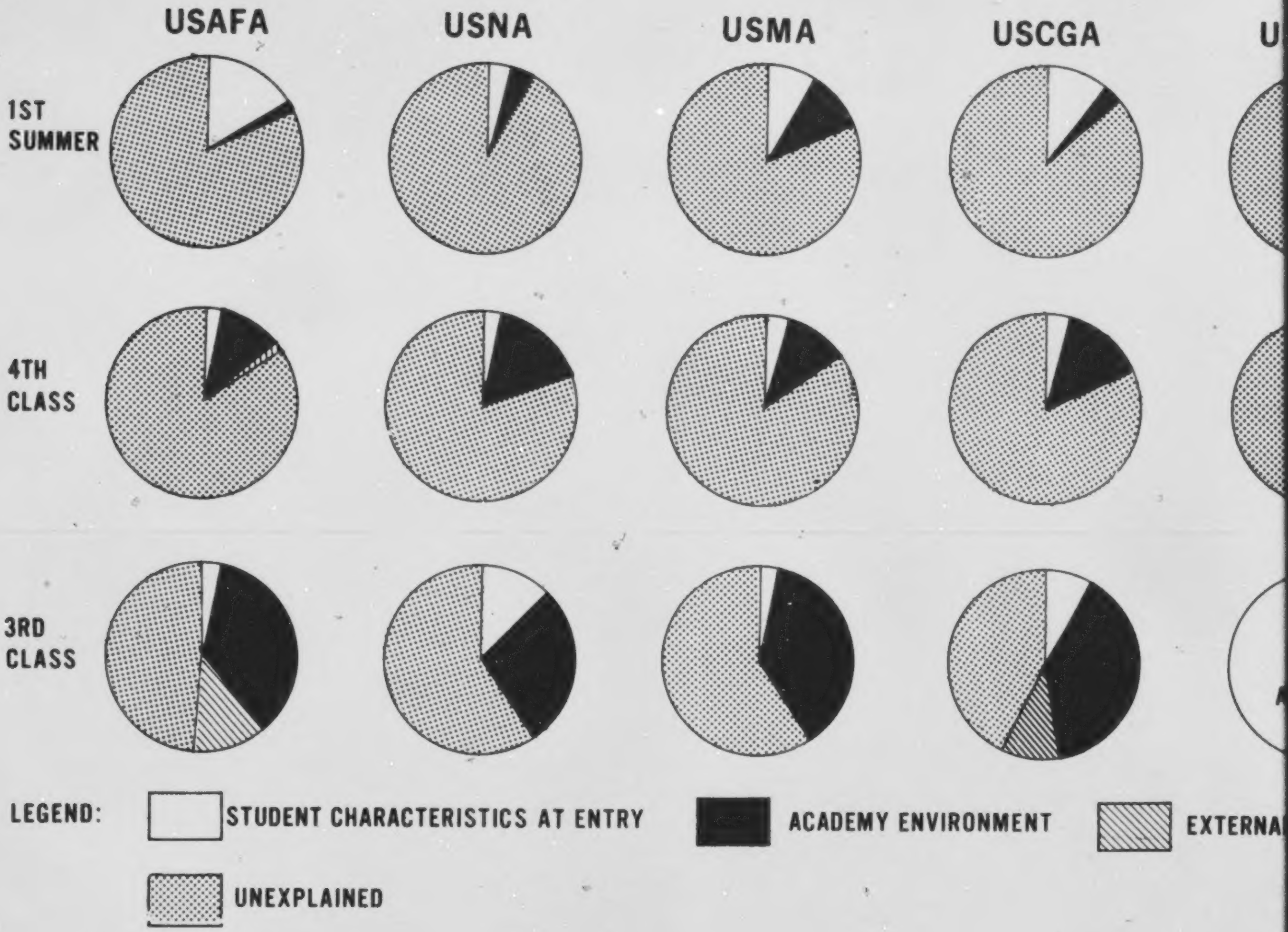
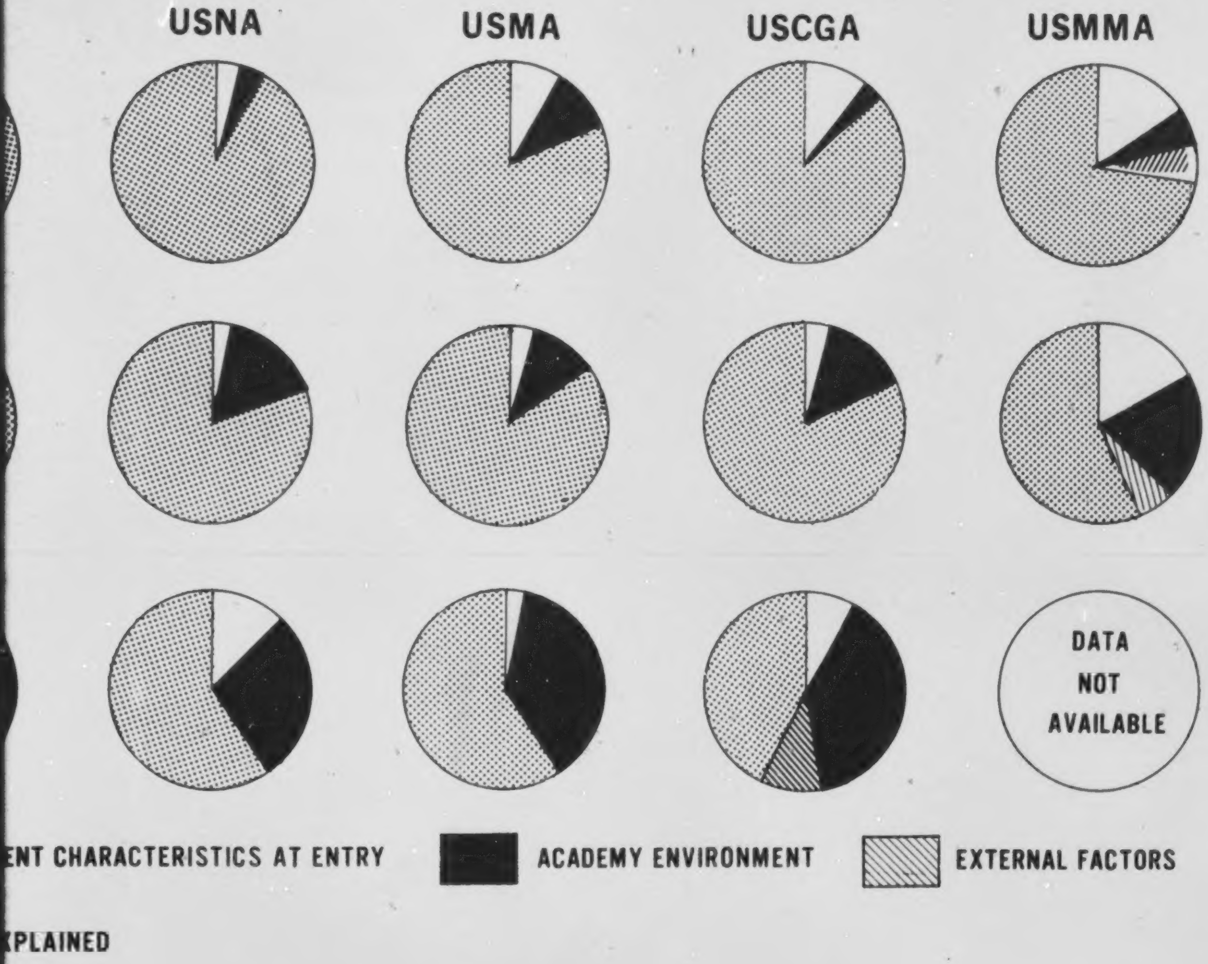


Chart 6

SOURCES OF ATTRITION



With two notable exceptions, student characteristics at entry are less important for classes which have been at the academies longer. At the Merchant Marine Academy student characteristics at entry consistently account for about 16 percent of the variance in attrition during the two periods for which we have data. At the Naval Academy these characteristics account for over four times as much attrition during the third-class year as they did during each of the earlier periods.

External factors account for 6 percent of the attrition variance during both the first summer and fourth-class year at the Merchant Marine Academy. These factors also accounted for 7 percent of the third-class attrition at the Coast Guard Academy and 12 percent of the attrition variance during the same time frame at the Air Force Academy.

Overall, we were able to identify factors related to between 8 and 54 percent of attrition--depending on when and where it occurred--by reference to our survey responses. Except for the Merchant Marine Academy, the percentage of attrition accounted for by these factors is relatively constant across the different academies and also from the first summer to the fourth-class year. About three times as much attrition can be accounted for during the third-class year as during the other time frames.

In terms of amount of attrition we were unable to explain, it should be noted that studies done by the academies have generally left a much larger area unexplained. Chart 7 compares the results of three academy studies which employed data analysis techniques similar to the one we used and the results of our study at the same academies. All of the results compared in Chart 7 were cross-validated--unlike those displayed in Chart 6, so the two charts are not comparable. In the Navy studies referenced in Chart 7, item analysis techniques were used to develop empirically keyed disenrollment scales for the Strong Vocational Interest Blank (Abrahams and Newman, 1973). In the Coast Guard Academy study, 10 regression equations were developed using different admissions data to predict attrition, and each was tested for efficiency in terms of accounting for attrition variance (Enger, Mednick, and Fisher, 1972). The variance accounted for by the most efficient equation is shown in Chart 7.

There may be a number of reasons why our results are generally better than those of the academies. We believe the principal reason for the difference is that our study incorporated academy environment and nonacademy factors as well as student characteristics at entry unlike the academy studies which include only the latter factors.

Chart 7

HOW GOOD ARE GAO RESULTS ?

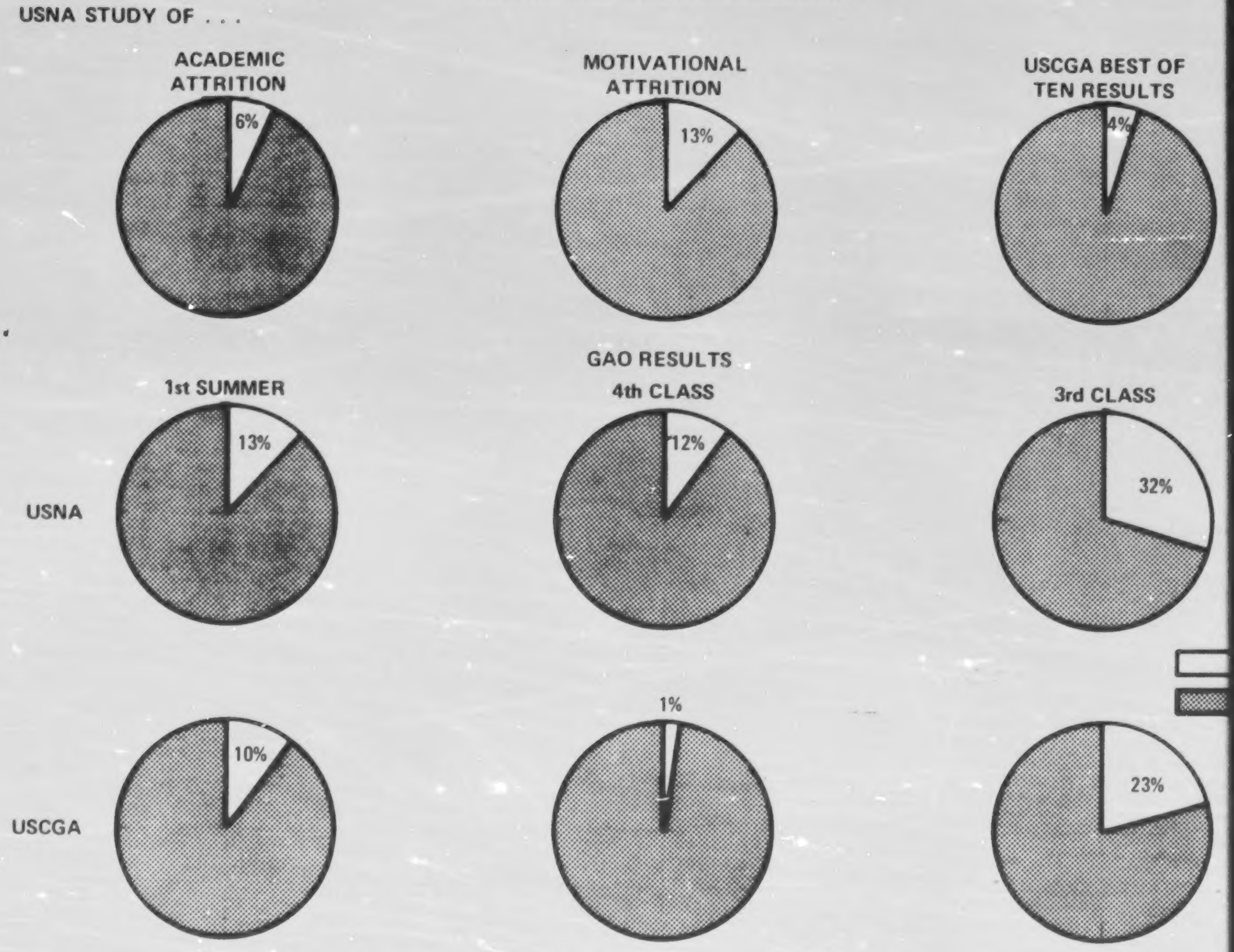
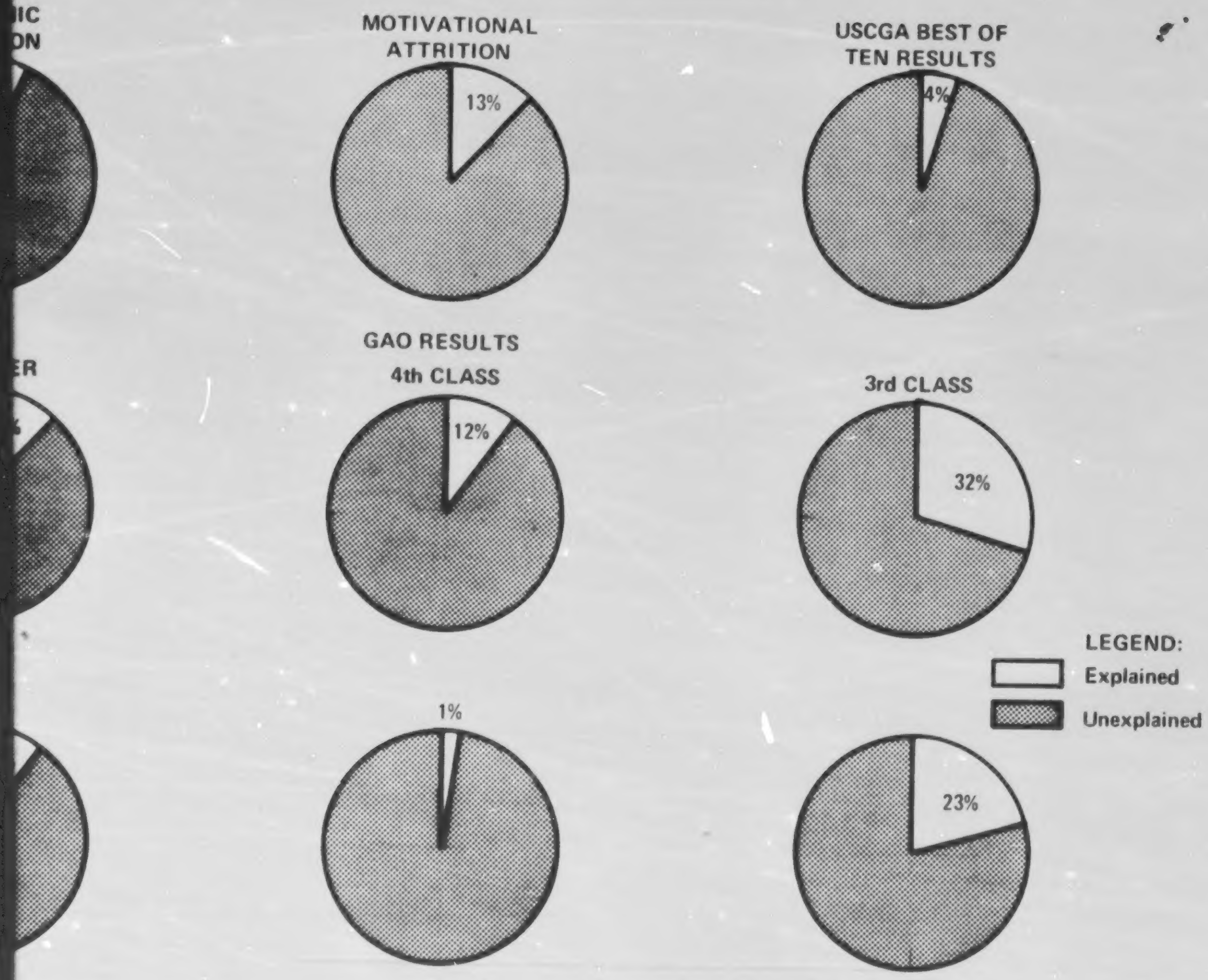


Chart 7

HOW GOOD ARE GAO RESULTS ?



In subsequent sections of this chapter, the major variables related to attrition will be specifically discussed. Some of these will be discussed in detail; others will only be mentioned briefly. For the most part, the detailed discussions will involve those variables for which we (1) recognize the existence of explanations of their relation to attrition which are different from those stated in the main report, or (2) believe knowledge of academy studies or sociopsychological research is necessary to understand how the variable is related to attrition. In the first instance the discussion will include the results of special data analysis performed to test the feasibility of the alternative explanations. In the second the discussion will include citation of particular studies or research results which the reader is encouraged to consult if the validity of our conclusion seems uncertain.

While the remaining discussion will continue to be organized around the distinction among student characteristics at entry, academy environment, and external factors, we recognize that the distinction is a conceptual oversimplification designed to aid communication. In fact, a conceptualization of attrition as resulting from a mismatch between the individual and the environment in which he lives is crucial to understanding the method of presenting some of our findings here, as well as in the main report. In this respect we share a close affinity with Feldman and Newcomb (1969) who, after reviewing 40 years of research concerned with the impact of colleges on their students, concluded that the only way to understand the phenomenon of dropping out was to view it in the context of a lack of fit between the needs, desires, values, aspirations, and abilities of the student on the one hand and the perceived opportunities in the college environment to express or satisfy those characteristics on the other.

As will be evident in following discussions, such a conceptualization of the causes of attrition helps to explain a number of findings which would otherwise seem anomalous. For example, we found that current students were more dissatisfied with the system of pay at the academies than were dropouts. On the surface this finding--being in contradiction with so much previous research on the relationship between organizational satisfaction and voluntary withdrawal--suggests an explanation in terms of methodological artifact (that is, since the survey was conducted after the dropouts left the academy, the pay satisfaction responses are biased). The explanation of bias would presumably be that the current students are still in the environment experiencing dissatisfaction with the pay system, but the dropout--who also experienced dissatisfaction--no longer does because he has left that environment and his feelings have mellowed with time. Furthermore, the explanation might hold that the dropout cannot accurately recall his level of dissatisfaction with the pay system because, for him, it was not really an important reason for leaving.

We recognize that this is a possible explanation for some of our findings, but we do not feel it is a plausible explanation. In the particular instance of pay dissatisfaction, a special test of the data was conducted (and will be described later) which we believe allows us to discount methodological artifacts as major explanations for the finding. Moreover, we feel that the total weight of evidence points in another direction. Most significantly, there are too many of these otherwise anomalous findings which fit too well into a conceptual framework--which will be discussed later--supported by too many studies conducted both within and outside the academies. As will be seen, the key to the conceptual framework is in viewing attrition as a result of the interaction between the personality of the student and the environment he inhabits and in asking what these anomalous responses to questions about the environment tell us about personality differences among the students.

STUDENT CHARACTERISTICS AT ENTRY

As Chart 6 shows, student characteristics at time of entry are most important during the first summer for all academies and during the fourth-class year at the Merchant Marine Academy. They are also somewhat important during the third-class year at the Naval Academy.

Commitment at entry

The student characteristic at entry most consistently related to attrition at all academies during the first summer is a factor we call "commitment to graduation and a career." Table 18 shows that this factor accounts for a significant, and sometimes large, percentage of the attrition due to student characteristics during this time frame.

TABLE 18

IMPORTANCE OF INITIAL COMMITMENT DURING 1ST SUMMER

Source of attrition	Percent attrition accounted for				
	USAFA	USNA	USMA	USCGA	USMMA
All student entry characteristics	17%	4%	9%	13%	13%
Initial level of commitment (3) (note a)	13	3	3	6	4

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[a] The parenthesized number after each factor in this chapter indicates the sequence in which complete information on the factor is displayed in Attachment IX.

Our measure of commitment was obtained from responses students provided shortly after they entered the academies to a number of questions asked by the American Council on Education of some 318,718 freshmen who entered college in 1973. These questions generally concerned how likely the students felt that they might (1) temporarily or permanently drop out of the college they had just entered, (2) transfer to another college, (3) change their choice of careers or academic majors, (4) fail one or more courses, or (5) get married while in college. At the academies those who saw a greater likelihood of these events occurring were more likely to leave than their classmates.

The importance of initial commitment is not surprising, and studies by a number of academies have underlined its importance. Its importance is not surprising because the life of an academy student is hard--and hardest during the first summer. One academy (U.S. Air Force Academy, 1974) currently issues a booklet to prospective candidates which we believe indicates the nature of challenges to a student's commitment during the first summer. In part, the booklet warns:

> For each of 45 days, there are about 15 hours of scheduled activity. Basic cadets have little time to call their own...It starts with lines. There's a line for everything: turning in money and personal possessions, filling out all sorts of forms, picking up uniforms, shoes and boots, and a rifle. And for leaving all but a quarter-inch of hair on the barber's floor...(The basic

> cadet) is given a room...clean, well-equipped, and well-designed, but it's stark, and with it come a hundred rules on how to keep it looking a certain way...The upperclassmen are everywhere, controlling everything...Basic cadets run or march everywhere they go...The lungs hurt. Everything hurts!

Several studies done at the Military Academy and the Coast Guard Academy have shown that a student's commitment to a military career and the image he has of the Academy decreases the longer he is there. Bridges (1969) has found that the average student in the Military Academy classes of 1969-72 had a lower commitment to a military career at the time he graduated than at the time he entered. Bridges also found that commitment to graduation had a high initial level and increased every year up to graduation, while commitment to a military career had a lower initial level and decreased each year until graduation.

A survey of freshmen in the class of 1970 at the Coast Guard Academy (Williams, Wells, Korb, & DeMichiell, 1973) found that 73 percent listed their probable career occupation as "military science." As seniors only 42 percent of this class listed the same probable career occupation. Even if other career speciality occupations important for Coast Guard service officers are included, the total percentage of seniors listing such service-relevant probable occupations is 62; however, 90 percent of the freshmen listed such probable occupations.

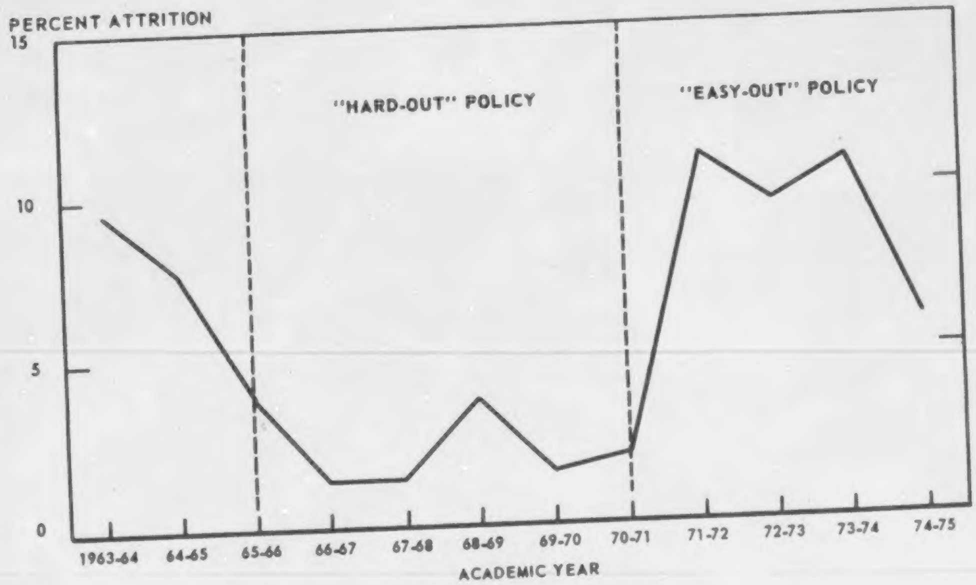
The overall image of the Military Academy as perceived by its students has decreased in recent years. Bridges (1971) reports that the number of students who would encourage an outstanding high school student to come to the academy rather than to a prestigious civilian college has been decreasing from the class of 1958 to the class of 1970. Moreover, 90 percent of the class of 1958 said that if they could reconsider their original decision, they would still come to the Academy, but only 47 percent of the class of 1971 felt the same way. Furthermore, 35 percent of a sample of the Military Academy's class of 1971 had a positive feeling about their school and 27 percent had a negative attitude, while 81 percent of a civilian college sample in the same year had positive feelings about their school and only 5 percent had negative feelings.

One possible cause of a student's decreased commitment to a military career and the low image of an academy among its students is the academy environment. Since Bridges (1969) found that first-year dropouts had lower commitments to both graduation and a military career than did their peers, it can be further inferred that although the academy environment has a negative effect on all of its students, the effect on some is perhaps of such a magnitude that it exceeds their level of commitment and, therefore, contributes to their dropping out.

A striking example of the interaction between a student's initial level of commitment and the academy environment is--we believe--represented by the Air Force Academy data where commitment is two to four times more important than at the other academies. According to officials there, the philosophy of the Superintendent during the first summer was that too many students were graduating who would not make good military officers. An Academy official stated that this Superintendent was bothered by the performance of some of the graduates of the class of 1970 which had the lowest attrition rate in the Academy's history (28 percent)--a number turned out to be conscientious objectors. As a result, the Superintendent made it easier for students to voluntarily resign. This included elimination of the so-called "hard-out" policy where students were not allowed to resign until October, except for unusual circumstances. The effect of the elimination of the "hard-out" policy on first summer attrition can be seen in Chart 8. During the period of the

Chart 8

AIR FORCE ACADEMY
FIRST SUMMER ATTRITION



"hard-out" policy, Academy officials had more time and the Superintendent's encouragement to try to encourage students whose commitments were low to remain at the academy. Such was not the case during the "easy-out" period.

Merchant Marine and Naval Academies

At the Mercant Marine Academy, we found that a comparatively large number of student characteristic factors were related to first summer and fourth-class academic year attrition which collectively explain a significant amount of attrition (17 percent during the first summer and 15 percent during the fourth-class year). We believe that the reason for the large number of factors may be that while the other academies have, through their admission criteria and large pool of qualified applicants, been able to select only those which their research has shown to have greater retentive potential, the Merchant Marine Academy has not been able to be so selective. Its pool of applicants has been decreasing.

For the classes of 1969-77, nominations have fallen by more than 25 percent and candidates considered qualified for admission dropped by about 44 percent. Yet the number of students admitted each year has remained fairly constant. In effect, the Academy is selecting its students from a smaller, less academically qualified pool. Yet, our analysis shows (see Enclosure C and Chapter 3 of the main report) that those who are lower in terms of academic achievement and mathematical abilities have higher dropout rates.

During the third-class year, the Naval Academy has about four times more attrition due to student characteristics than the Air Force and Military Academies. We have no compelling explanation why it experiences so much third-class attrition due to student characteristics. However, as shown in Chart 2 of the main report, the Naval Academy has substantially greater third-class attrition than the other academies. It may be that this Academy explicitly or implicitly encourages longer retention than the other academies for those who are academically deficient or who do not generally fit into the environment. Further, at the Naval Academy, the class upon which we performed our analysis had the greatest diversity in academic qualifications of any of the preceding eight entering classes.

ACADEMY ENVIRONMENT FACTORS

We identified a limited number of factors which account for most of the variance in attrition due to the academy environment. Tables 19, 20, and 21 show the names assigned to those factors and how much of the attrition they account for during the first summer, fourth- and third-class years, respectively. In subsequent sections the factors will be defined, the nature of their relationship to attrition will be stated, and specific research relating to how these factors may interact with student characteristics to cause attrition will be cited.

TABLE 19

MOST IMPORTANT ACADEMY ENVIRONMENT FACTORS DURING FIRST SUMMER

Factor	Percentage attrition accounted for				
	USAFA	USNA	USMA	USCGA	USMMA
All academy environment factors	1%	4%	11%	3%	6%
Satisfaction with traditional military training (35)	1		2	3	
Overall satisfaction (32)		1	4		
Reference group identification (34), (39)		2			6

TABLE 20

MOST IMPORTANT ACADEMY ENVIRONMENT FACTORS DURING FOURTH-CLASS YEAR

Factor	Percent attrition accounted for				
	USAFA	USNA	USMA	USCGA	USMMA
All academy environment factors	11%	16%	11%	14%	20%
Typical college activities (72)		6	4	2	6
Academic program (67)	6		1	3	3
General satisfaction (70)		5	2		
Delegation of responsibility and authority (76)		1		3	2
Reference group identification (74), (75)		2		2	1

TABLE 21

MOST IMPORTANT ACADEMY ENVIRONMENT FACTORS DURING THIRD-CLASS YEAR

Factor	Percent attrition accounted for			
	USAFA	USNA	USMA	USCGA
All academy environment factors	35%	28%	37%	39%
Uniformity and consistency of rules and discipline (108)	1	1	4	17
Academic program (107)	3	4	3	8
Role conflicts (123)	11	1	1	4
Peer leadership (112), (114), (115)	1	2	5	1
Traditional military training customs (107)		5	1	2
Environmental influence (125)	7	6		
Typical college activities (119)		6	3	
Reference group identification (120), (121)	5			2
Role ambiguity (128)			12	

The factors of "environmental influence" and "rule uniformity and compliance" listed in Table 21 will be discussed in terms of differences in beliefs by current students and dropouts about their ability to exercise some control over their environment. "Peer leadership" and "role ambiguity," also from Table 21, and "delegation of responsibility," from Table 20, will be discussed in terms of the effects of a competitive environment on those who have a high drive for success versus those who have different values. Finally, discussions of the other factors will be headed by their appropriate factor names.

General satisfaction

Student responses to two types of questions made up the measure of general satisfaction with the academy environment. The first type has traditionally been used in organizational morale studies and consisted of questions about (1) whether the student would encourage a close friend to attend the academy and (2) what emotional feelings the student had about the academy--ranging from "very strong attachment" through "strongly dislike."

Responses to the second type of question indicated some of the reasons for the student's overall dissatisfaction. For both the first summer and fourth-class academic year, this type of question asked about the effect on a student's desire to leave or his dissatisfaction with the following aspects of the academy environment:

--Personal growth opportunities.

--Frequent challenges to ability.

--Leading a disciplined life style.

--Increasing familiarity with the military.

In addition, during the fourth-class academic year, we included questions about specific aspects of the academic program, such as satisfaction with opportunities to take subjects of interest, with the intellectual or educational challenge in the curriculum and with the amount of technical emphasis in the curriculum.

As can be seen from Attachment IX (factors 32 and 70), there is a significant inverse relationship between the factor we called "general satisfaction"--on the basis of the consistently high loadings and zero-order validities of the morale questions--and the probability of attrition from the Military and Naval Academies during the first summer and fourth-class year. Thus, dropouts were most dissatisfied in general with the academy than were those who stayed.

For the first summer, the major facets of academy life which contributed to the overall level of satisfaction--as indicated, again, by item loadings and validities--were

--perceived quality of the military training program;

--leading a disciplined, well-structured life;

--living in a competitive environment;

--frequency of challenges to ability; and

--opportunities for personal growth and development.

Research done by a number of academies provides some explanation for the dropouts' responses that personal growth opportunities and a regimented lifestyle decreased their desire to study (see Chapter 4 of Enclosure B). Academy research has consistently found that the average dropout is unlike his classmate who has a need to get suggestions from others, to find out what others think, to follow instructions, to do what is expected, to accept the leadership of others, to conform to the norm and avoid the unconventional, and to let others make the decisions. Rather, the average dropout has a high need for self-direction, to be able to come and go as he desires, to say what he thinks, to be independent of others in making decisions, to do unconventional things, to do things without regard to what others may think, and to criticize those in positions of authority. In addition, this research indicates that the dropout is more creative than the student who stays but is less concerned with order in the environment surrounding him.

During the fourth-class academic year, level of satisfaction was determined more by the academic program than the military program. There were a large number of aspects of the academic program at both the Naval and Military Academies which created the higher level of overall dissatisfaction among the dropouts and contributed to attrition, but primarily they related to

--the quality of academic instruction;

--the variety of courses offered;

--the intellectual and educational challenges in the academic curriculum; and

--the opportunities to major in, concentrate in, or take subjects of interest.

Those who left were significantly more dissatisfied with each of these aspects of the academic program than the current students and, at the Naval Academy, also had more inaccurate expectations of the academic program. Thirty-four percent of Naval Academy students who dropped out in their fourth-class year stated they had inaccurate expectations about the academic program compared to 17 percent of the current students. Also, there was a significant positive relationship (r=.34) between accuracy of expectations about the academic program and the level of satisfaction with that program.

In addition to the academic program, a major contributor to overall dissatisfaction and attrition during this period was again the effect of increased familiarity of the dropouts with the military service and their perceived lack of opportunity at the academy for personal growth and development. Dropouts were also more dissatisfied with having to live in a competitive environment. At the Naval Academy, dissatisfaction was also associated with having to lead a disciplined, well-structured life.

One interesting point is that--whether or not they leave--students at the Military and Naval Academies do not appear to distinguish between the academic and military programs when they report their overall level of satisfaction during the fourth-class year. Students at the other three academies do make this distinction. In fact, among Air Force Academy students the distinction is referred to as "the terrazo gap" because of the terrazo court which must be crossed when going from academic buildings to military training buildings. According to one recent Academy graduate, the "gap" is most typified by comparing English, humanities, and social science professors who encourage open-mindedness and aggressive pursuit of knowledge with military training officers who demand submissiveness and instant obedience.

Traditional military training exercises

More than the academic program, the military training program at the academies gives them their unique character in American higher education. It also probably contributes most to the student's image of the institutional environment. Perhaps because of this, most of our understanding of the relationship between military training factors and attrition is indirect and requires reference to challenges to commitment and other student-environment interactions.

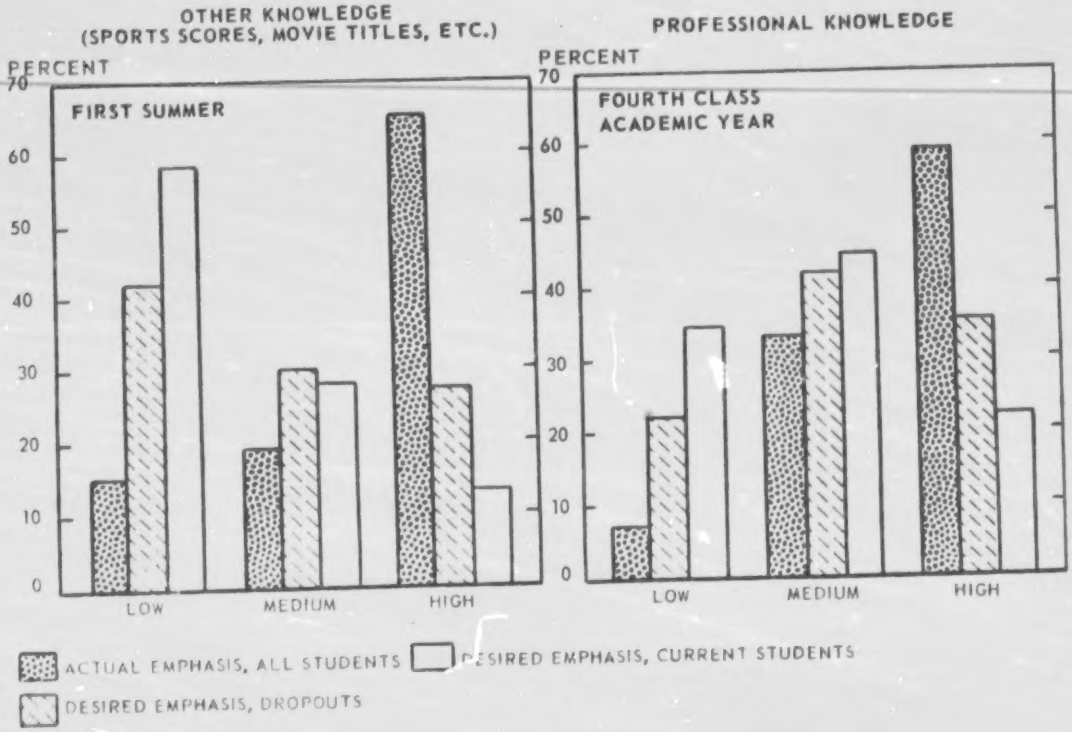
However, we did find that dissatisfaction with the traditional military training exercises was an important factor related to first summer and third-class year attrition at some academies. Specifically, it was related to first summer attrition at the Air Force, Military, and Coast Guard Academies (factor 35) and to third-class year attrition at the Military, Naval, and Coast Guard Academies (factor 107). At the latter two academies the factor measures the degree to which students perceive an overemphasis during the first summer and fourth-class academic year on learning such information as sports scores and the titles and names of local movies for recitation to upperclassmen. At the Military Academy the factor also measures perceived overemphasis on inspections, drills and ceremonies, and learning such information as ranges of weapons and military ranks and insignia for recitation (professional knowledge). At the Air Force Academy it was principally the dropouts' perceived over-emphasis on professional knowledge.

Our measure of "overemphasis" was based on the difference between the amount of emphasis a student reported being placed on a specific activity during the first summer and fourth-class year and the amount of emphasis he felt should be placed on that activity in view of the objectives of the academy. To interpret the signs of the correlation coefficients for the validity of the individual questions and for the factors, we carefully examined the marginal distributions of the "difference," the "actual," and the "should be" responses. It is not practical to reproduce those distributions here; however, Chart 9 provides an indication of their general shape.

The Chart shows the degree to which third classmen feel that knowledge requirements are overemphasized. For all academies, both dropouts and current students reported about the same levels of "actual" emphasis on professional knowledge recitation and recitation of other knowledge. Both groups also reported "desiring" substantially less emphasis on these recitations in view of the objectives of the academies as they understood them. A much greater percentage of dropouts, however, desired reduced emphasis. Thus, for example, Chart 9 shows that 15 percent of both dropouts and current students reported a low level of actual emphasis during the first summer on other knowledge recitation, but 42 percent of the current students and 59 percent of the dropouts felt there should be low emphasis on this knowledge during that summer.

Chart 9

EMPHASIS ON RECITATION DURING FIRST SUMMER AND FOURTH CLASS ACADEMIC YEAR AS REPORTED BY THIRD CLASSMEN ALL ACADEMIES



Academic program

There are some differences among the academies in the structure of the academic program factor (67) which was related to attrition during the fourth-class year; however, these differences do not exist for the academic program factor (107) for the third-class year.

During the fourth-class year, dropouts at both the Air Force and Military Academies apparently experienced some difficulty in obtaining individualized instruction and were not very satisfied with the quality of instruction they received. At the Air Force Academy this factor had a significant and fairly strong relationship to attrition (r=.23; percent of variance accounted for ≐ 6). While the relationship was also significant at the Military Academy, it was weak (r=.09; percent of variance accounted for ≐ 1).

Examination of the tabular data for factor 67 shows that we extracted two academic program factors at each of the two smaller academies and further that one of the two factors at each academy is not significantly related to attrition. Careful examination of the validities of the items making up these nonsignificant factors--as well as the Naval Academy factor--suggests to us that there can be compensating influences at work in an academic program. For instance, examination of the Merchant Marine F-12 factor shows a high positive validity for "variety of courses offered"--indicating a substantial demotivating effect on dropouts--and a high negative validity for "number of courses in which instructor knew subject matter well"--indicating that dropouts reported more such courses than current students. We believe the reason that F-12 was not significantly related to attrition is that the number of these positively and negatively motivating aspects of the academic program balanced themselves in the eyes of the dropout.

The significant academic program factors at the two smaller academies are similar in structure to the general satisfaction factor discussed earlier. However, the size of the item loadings and the absence of the morale questions at the Merchant Marine Academy clearly indicate these factors to be concerned with both specific and general aspects of the academic program.

During the third-class year, the academic program factor (107) is the same at all the academies for which we have data. The factor measures (1) the extent to which the quality of instruction and the variety of courses offered increase the student's desire to stay and (2, the extent to which he is satisfied with the intellectual challenge in the curriculum and the opportunity to major or concentrate in, or take, subjects of interest. While accuracy of expectations about the academic program is loaded on this factor at all academies, only at the Coast Guard is this loading as high as the loading for other items. In fact, the zero-order correlation between accuracy of expectations and perceived quality of the academic program is .45 at the Coast Guard Academy, indicating that those who had less accurate expectations were also more likely to have been less satisfied with the program.

Reference group identification

A substantial body of research has shown that the more similar an individual's attitudes and beliefs are to those of a reference group, the stronger will be the group's attraction to the individual and the more likely he is to remain in the group (see, for instance, Vroom, 1964; Tannenbaum, 1966). Conversely, the more he perceives himself to be different from the group, the less is its attraction to him, and the more likely he is to leave it. In our questionnaire we asked current students and dropouts the extent to which their attitudes and beliefs were similar to the following reference groups' attitudes:

--Officers at the academy.

--Other officers.

--Academy students.

--Students who recently graduated.

--Students who resigned or were separated.

--Students attending civilian colleges.

--Peers in their home town.

We found at a number of academies, and during all time frames, that the ability of students to identify with a military reference group, either the officers at the academy, other officers, or recent academy graduates, was an important factor in whether they stayed at the academy (see factors 34, 74, 120, and 121). Conversely, where the students saw themselves more similar to students who resigned or were separated or to peers in their home, they were more likely to drop out (see factors 39 and 75). This finding is consistent with research at the Military Academy (Bridges, 1972) which showed that students who resign are more like a national probability sample of men in general in terms of the importance they assign to certain life values. Students who stay, on the other hand, are more like officers at the academy in terms of these values. Those who stay assign higher importance on the Rokeach Value Scale than those who leave to achievement and self-competence while ranking social values lower. Those who stayed also assigned higher ranks than those who left to the terminal value of accomplishment and the instrumental values of obedience, ambition, and responsibility. On the other hand, they assigned lower ranks than the resignees to the terminal values of inner harmony and mature love and to the instrumental values of cheerfulness and imagination. The value systems of the retained cadets were more like those of the West Point officers, while the resignees' value systems were more like those of a national probability sample of men in general.

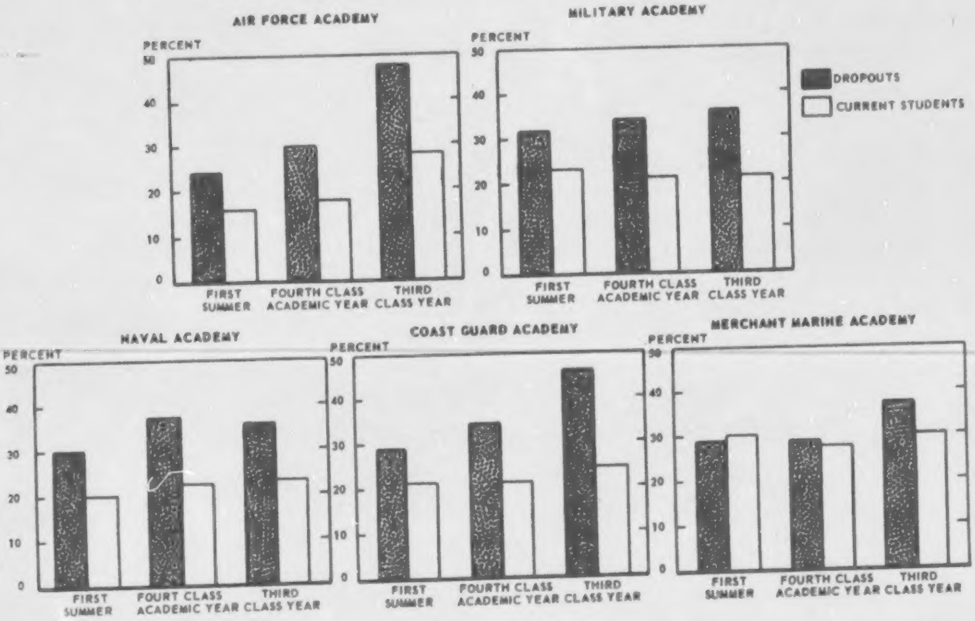
The findings in the Rokeach Value Study tend to agree with a clinical assessment (to be discussed later) that resignees have lower achievement orientations and higher needs for affiliation and affection. They also agree with personality trait study findings that persistors are higher in deference needs and tendencies to achieve via conformity (see enc. B).

Role conflict

Role conflict was a major factor in the Air Force Academy's third-class attrition--accounting for 11 percent of the variance. It was also a significant, but not as strong, factor at the other academies. Our measure of role conflict was dominated by responses to a single question (see factor 123). We had asked students to indicate the extent to which they felt bothered during their (a) first summer, (b) fourth-class academic year, and (c) third-class year with the feeling that "the things I had to do were against my judgment." For those who dropped out in their third-class year, there was a consistently greater feeling on their part during all three time frames that they felt bothered by having to do things against their judgment. Chart 10 shows the responses of all dropouts and current students at all academies who responded to the question.

Chart 10

PERCENT OF STUDENTS WHO FELT BOTHERED "NEARLY ALL THE TIME" OR " RATHER OFTEN" WITH THE "FEELING THAT THE THINGS I HAD TO DO WERE AGAINST MY JUDGEMENT"



At the Military and Coast Guard Academies, those who reported this role conflict also reported more negative emotional feelings about the Academy and dissimilarity in attitudes with the officers at these Academies. At the Air Force and Coast Guard Academies they also reported more dissatisfaction with the opportunities for personal growth and to exercise initiative. With respect to the nature of the role conflict indicated by these last two items, it should be noted that a number of modern writers have postulated that this conflict is inherent in the psychological need for the individual to grow and the sociological requirement for stability in organizations. As one well known writer on the topic of "organizations" has said:

> Today in the highly specialized societies of the West, most people spend much of their time as small cogs in the machinery of large impersonal bureaucracies...(B)eing a cog in such machinery, the individual has lost much of the control over his own destiny. Many people have a feeling of powerlessness, of alienation, and they respond with various kinds of behavior. Some are able to manipulate organization sufficiently well to achieve important aims of their own. Others submit to bureaucratic standards of achievement and

> find bureaucracy a natural and comfortable habitat.... (Critics of modern bureaucratization) deplore the loss of individual freedom and initiative.
>
> (Thompson, 1961, pp 4-5.)

For those concerned with growing and exercising initiative, it may be difficult to adjust to the demands of a successfully operating bureaucracy.

The competitive environment

A number of studies conducted at the academies have shown that those who stay are more concerned with high success than those who leave who, conversely, are more concerned with establishing friendship (see ch. 4 of enc. B). For instance, one conclusion reached by an academy counsellor after intensive study of 246 students who voluntarily left was that:

> Essentially, the resignees as a group appeared to be largely non-competitive and not achievement oriented. Most resignees appeared to have much higher needs for affiliation, affection, and easy success than they had for achievement, personal accomplishment, and hard-fought success. (Burris, 1968, p. 12.)

The individual concerned with success has been characterized in the personality research literature as one who has a stronger motivation to achieve in terms of a standard of excellence than to avoid failure in terms of that standard (Atkinson, 1964; Edwards, 1953; Mehrabian, 1968). He also is more independent in his interpersonal relationships and is better able to delay gratification; that is, he tends to engage in activities which may not be intrinsically satisfying but which lead to distant rewards. Finally, he prefers activities which involve skill or competition to activities which involve chance or cooperation. On the other hand, those concerned with friendship have been characterized as having needs to be loyal to friends, to participate in friendly groups, to do things for friends, to make as many friends as possible, to share things with friends, and to do things with friends rather than alone (Edwards, 1953; Hall & Lindzey, 1969).

In an environment where students are rank ordered in terms of their grades and extra classroom performance and the rank order has particular significance in terms of job choice, in an environment where classes are frequently redistributed according to ability, in an environment where the standard of excellence is the "Long Grey Line" (or the equivalent) and its stalwart members, and in an environment where team captains and academic talent is the rule rather than the exception, it is perhaps not surprising that a strong drive for success is important to survival. Moreover, to the extent that one enters this environment feeling that friendships and group camaraderie are more important than displaying individual achievement, it is not surprising that the research shows these students to have a smaller chance of survival.

While our study did not directly measure the degree of achievement orientation or affiliation needs of the students, we did identify a number of important factors in attrition which we believe indirectly support the importance of these individual differences to attrition.

At the Military Academy during the third-class year, there was a much greater feeling by those who stayed that they frequently were uncertain about the scope and responsibilities of their role, and they did not know what officers or upperclassmen thought of them or of their performance (see factor 128). For those striving for success in terms of a standard of excellence, it would seem important to know both what that standard consists of (that is, to have a clear picture of the role performance required) and how others evaluate performance in relation to it. Since those who left were not bothered by this feeling of role ambiguity, we believe this indicates their lack of concern with achievement in an environment which demands it for survival.

Similarly, current fourth-class students at some academies reported more frequently being bothered by having too little authority and responsibility delegated to them by academy officers and upperclassmen (factor 76). Again, this is interpretable in the framework of current students striving for achievement and dropouts' disregard for it.

Also, when peer leadership at the Air Force and Military Academies is defined as the extent to which both classmates and upperclassmen encourage each other to give their best effort and maintain high standards of performance, those who stay see more leadership in the environment than those who leave (factor 114). Those who stay at the Naval Academy also see more leadership when it is defined as the extent to which upperclassmen--who may be presumed to be significant in setting performance standards--provide support and encouragement (factor 115). On the other hand, when it is defined as the extent to which classmates provide support and encouragement at the Military Academy, a definition which may be close to one of affiliation, those who drop out see more leadership in the environment (factor

112). This may be expressed as follows: to the extent the academy environment emphasizes task accomplishment or to the extent social support is not provided by those responsible for setting the standards for accomplishment, there will be some attrition due to these styles of leadership.

There appears to be little question that the academy environment is a highly competitive one--and one which is competitive by design. A former chief of psychiatry at one academy describes that academy's environment this way:

> Candidates selected for West Point have already proved themselves to be academically, socially, and athletically competitive. West Point intensifies this competitiveness. In first-year math classes, for instance, men are graded and ranked every day, six days a week. Throughout every cadet's four years at the Academy, an evaluation of virtually every activity in which he participates is fed into a complex formula which determines his class ranking in 'the general order of merit.' High standing is important, since it determines a cadet's choice of service branch, his first assignment in the army, and his order of promotion in later years. 'Your order of merit follows you around forever,' a cadet remarked. Intramural athletics and intercollegiate sports are means par excellence of encouraging competition. The best company teams in each regiment are feted at regular intervals throughout the year, and pictures of the winning teams are posted on the walls of the cadet gym." (Uren, 1974, p.4)

Given what academy research has shown about the difficulty of the noncompetitive individual to survive in a highly competitive environment, given what the personality research literature has shown regarding high achievers, and given the results of our analyses which we believe support the findings of this research, it seems clear that an important factor in academy attrition is its intensely competitive atmosphere and the effect it has on the noncompetitive individual.

Beliefs about environmental control

Over the past decade, considerable research has accumulated indicating that people differ in their beliefs about how much control they have over what happens to them in a particular environment (for bibliographies of this research concerned with internal versus external locus-of-control orientation see MacDonald, 1972; Throop and MacDonald, 1971). Those who believe they have some control over their environment have been shown to be more knowledgeable about that environment and to engage in more goal-directed activity than those who believe the environment is beyond their control. In addition, those who perceive they have control also have higher levels of achievement drive and engage in more achievement-related behavior than those who do not have these perceptions.

As with the preceding factors, we believe that the factors we call "rule uniformity and compliance" and "environmental influence" indirectly support the significance to attrition of individual differences in locus-of-control beliefs.

Some third-class attrition at the military academies, and a substantial amount--17 percent--at the Coast Guard Academy, is attributable to a "rule uniformity and compliance" factor (108). Those who dropped out of these academies more often than those who stayed reported that student regulations tended to be applied uniformly and to be complied with consistently; they also reported that disciplinary actions were consistent and appropriately applied for infraction of the regulations.

The Air Force Academy booklet for applicants describes students' rooms as coming with "a hundred rules on how to keep it looking a certain way." There are rules and regulations for practically everything at the academies, and there are explicit penalties set out for violating many of them. In recent years, at one academy, the rules and disciplinary actions completely filled two looseleaf notebooks. As a result of discussions with students at the academies, we believe that there is considerable latitude in applying and complying with the rules and to a lesser extent in the appropriateness and consistency of the disciplinary actions. More than one student told us that in such an environment those who survive have learned to live with the system and actually circumvent it by cutting corners without getting caught. The students also said that those who try to totally live within the regulations rarely make it through an academy.

As previously mentioned, those who believe they have some control over their environment are also more knowledgeable about that environment. Such knowledge would seem to be a prerequisite for perceiving nonuniformity in application of the rules and of the disciplinary actions for violating them. It would also seem essential for discovering ways of circumventing that system of rules.

We recognize, however, that there may be competing explanations for our findings. The major rival hypothesis would probably be that those constituting the control group in this analysis--current second-class students from the class of 1975--had some academy experiences as a function of being there longer than the experimental group--third-class dropouts from the class of 1975--which made them respond differently than the experimental group. We conducted a special test of the plausibility of this experiential-bias hypothesis. The test consisted of combining third-class dropouts from the class of 1975 with third-class students from the class of 1976, then recomputing the validities of the factor and its major components and comparing those with the validities originally obtained.

Two assumptions were made in our special test of experiential bias. First, we assumed that third-class experiences of two adjacent classes at the same academy are roughly similar, so that subsequent experiential effects for the current students could be estimated by combining dropouts from one class with current students from an adjacent class who had roughly similar experiences. Second, we assumed that the validities based on the newly constituted group would be smaller than those obtained on the original group because so much more attrition was still to occur from the "current student" subgroup (recall from ch. 4 the discussion of why the class of 1971 was chosen for the analysis of third-class attrition). We could not, however, attach an expectation to the value of the shrunken validities.

The results of the test are reproduced in Table 22 which shows that, although the validities did shrink by an average of about 13 points, the correlation for the newly constituted group was still statistically significant and of a fairly respectable magnitude. Based on these results, we concluded that the interpretation of the "regulation uniformity" factor offered earlier is more plausible than one involving an experiential bias.

TABLE 22

TEST OF EXPERIENTIAL BIAS IN REGULATION UNIFORMITY FACTOR (108) USCGA

	Validities	
Item	Original group: third-class dropouts and second-class current students--class of 1975	Test group: third-class dropouts--class of 1975 and third class current students--class of 1976
Regulations tend to be applied uniformily	-0.322	-0.232
Disciplinary action tends to be consistent	-0.266	-0.213
Unclear about scope and responsibilities of role during third-class year	0.247	0.135
Satisfaction with student center facilities	-0.326	-0.163
Factor 108--uniformity of regulations	-0.411	-0.206[a]

[a] Some of the validity shrinkage here may be attributable to the fact that factor 108 in the test group was composed only of the unit weighted sum of items whose loadings exceeded 0.30 while in the original group it consisted of all items weighted by their factor coefficients (see p. 48 for an example of the differences which may occur from the two methods of computing factor scores).

Additional third-class attrition at the Air Force and Naval Academies was accounted for by individual differences in control beliefs as indicated by responses to an "environmental influence" factor (125). This factor was primarily made up of students' responses to items about (1) satisfaction with control over their pay and opportunities for sleep and other free-time activities and (2) the extent to which course work requirements and frequency of quizzes were seen as reasonable. The current students were more dissatisfied than the dropouts with the extent of their influence over the environment. They were less satisfied than the dropouts with the control over their pay and with their opportunities for sleep and other free-time activities. They also reported taking fewer courses in which the homework load and frequency of testing were reasonable.

We conducted the same special test with the environmental influence factor as had been conducted with the regulation uniformity factor because here, again, subsequent experience seemed to be a possible alternative explanation. The test was conducted on Air Force Academy data because officials there were the first to suggest the possibility of an alternative explanation. As before, the new factor score used in this test was a linear weighted composite of the variables loading above 0.3 on the original factor.

The results of the special test of experiential bias on perceptions of environmental influence are reproduced in table 23. The table shows that, although the validities did shrink by an average of about seven points, the correlations for the newly constituted group were--with one exception--still statistically significant and of a respectable magnitude. Based on these results, we concluded that the interpretation of the "environmental influence" factor offered earlier is more plausible than one involving an experiential bias.

TABLE 23

TEST OF EXPERIENTIAL BIAS IN ENVIRONMENTAL INFLUENCE FACTOR (125)
USAFA

	Validities	
Item	Original group: third-class dropouts second-class currents class of 1975	Test group: third-class dropouts class of 1975 third-class currents class of 1976
Satisfaction with opportunity to sleep	-0.242	-0.151
Satisfaction with free-time availability	-0.168	-0.115
Number of courses in which homework load was reasonable	-0.260	-0.176
Number of courses in which frequency of exams and quizzes were reasonable	-0.117	-0.081
Number of courses in which there was fairness in grading	-0.075	-0.034
Factor 125--environmental influence	-0.271	-0.167

Typical college activities

In an environment which is academically and militarily as demanding as the academies and which is populated with young men who are energetic and frequently away from home for the first time, it might be expected that the extent of involvement in activities typically engaged in by college-age young men for diversion or distraction might be related to the likelihood of dropping out. In fact, one factor consistently related to attrition during the fourth-class academic and third-class years is one which we called "typical college activities" (factors 72 and 119) and which relates to both classroom and extracurricular activities typically engaged in by college students. The factor was measured by responses to questions in our questionnaire about the frequency of engaging in a large number of activities. Analysis of those responses indicated that, during the fourth-class academic year at all but the Air Force Academy, those who stayed--as opposed to those who left--more frequently were involved in such activities as dating and arranging dates, playing pranks, coming late to class or openly disagreeing with an instructor, and drinking alcoholic beverages. At the academies where this factor is also important in the third-class year engaging in these same activities plus visiting a nearby city, skipping class, or visiting a faculty member's or officer's home were also related to retention.

We also conducted a special analysis with this factor to test the hypothesis that the differences between dropouts and current students in reported frequency of engaging in these activities resulted from the current students being at the academies longer and having more of an opportunity to engage in the activities. The analysis consisted of conducting X^2 tests of association between frequency of dating and length of time fourth-class dropouts were at each of the four academies for which this activity was significantly related to attrition. Because of small sample sizes, the tests were conducted with 2 x 2 tables, one margin being year of dropping out and the other margin being the categories of "not at all" versus "once or twice," "occassionally," and "frequently." Only the Naval Academy test was significant ($X^2 = 12.078$ with df =1, $p<0.001$). However, this result was considered to be of questionable reliability since one cell of the table contained only three observations--the "once or greater" cell for the first part of the academic year.

To judge the reliability of the Naval Academy result, two additional analyses were performed. The first consisted of repeating the test outlined above but using third-class dropouts from the class of 1975. This time the complete 2 x 4 table was examined since only the "frequently" cell for the first part of the year contained fewer than five observations (it contained three). The results indicated that those who dropped out later in the year dated more frequently than those who dropped out earlier (Cramer's V = 0.185; Kendall's tau C = 0.142, $p<.01$). However, since over three times as many dropouts left in the last part of the year--107 versus 31--we conducted 1 more test of the significance of the apparent time bias. The test was the same as that outlined in the last section for bias in the environmental influence factor. Third-class dropouts from the class of 1975 were combined with current third-class students from the class of 1976, and the validities of the dating frequency question and the estimated extracurricular activities factor were recomputed. Again, the new validities exhibited some shrinkage--as can be seen in Table 24--but not as much as in the test of the environmental influence factor. Moreover, the new validities are both large and significant.

TABLE 24

TEST OF EXPERIENTIAL BIAS IN TYPICAL COLLEGE ACTIVITIES FACTOR USNA

	Validities	
Item	Original group: third-class dropouts and second-class current students class of 1975	Test group: third-class dropouts class of 1975 and third-class current students class of 1976
Frequency of dating	0.230	0.185
Factor 119--typical college activities	0.238	0.169

In summary, while there is some evidence of an experiential bias producing differences among current students and dropouts in terms of engaging in typical extracurricular activities, we do not feel that evidence is of sufficient magnitude to discount the importance of the finding that nonparticipation in typical college activities is legitimately related to attrition.

EXTERNAL FACTORS

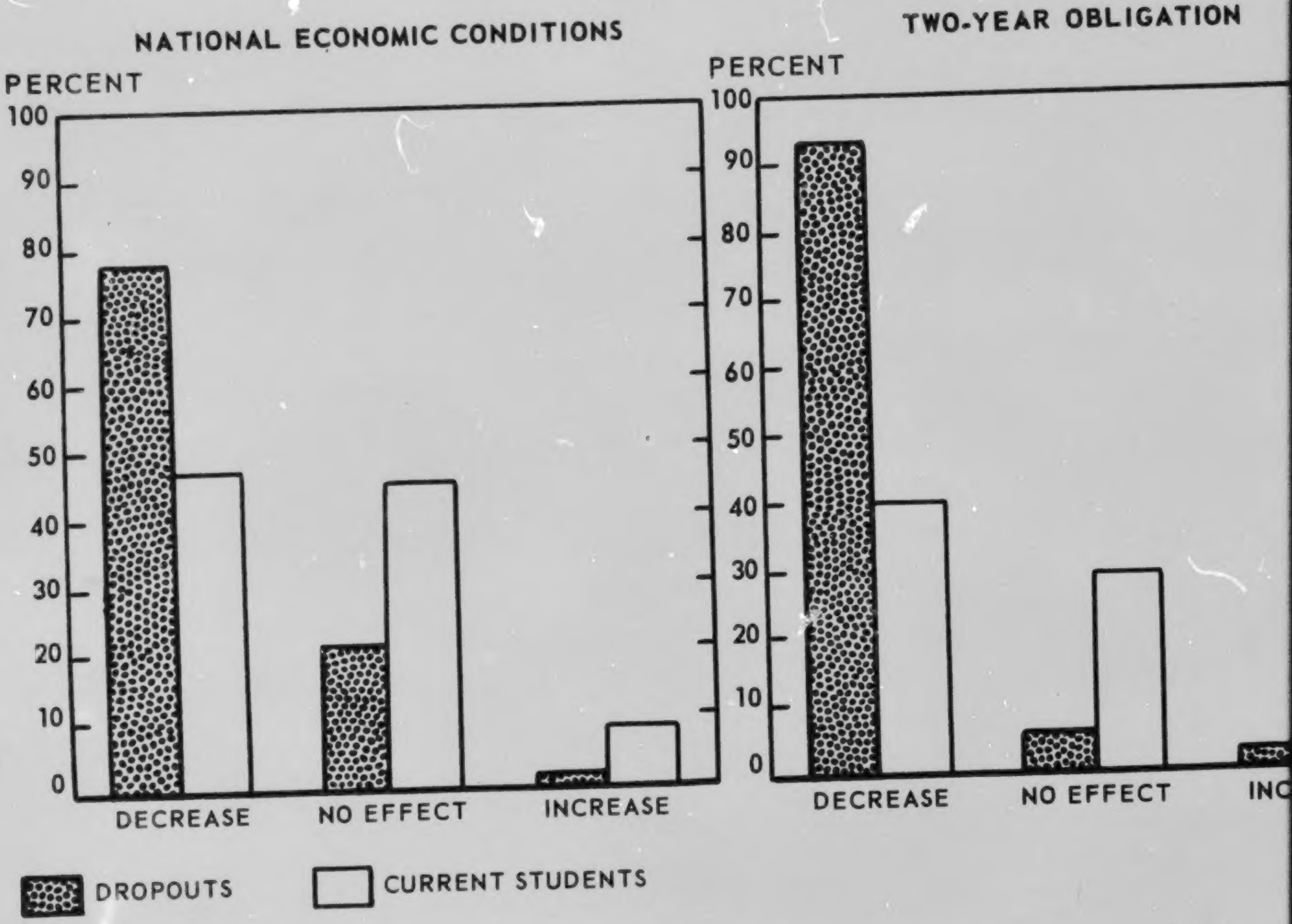
Factors external to academy environment and to the characteristics of the students were related to first summer and fourth-class academic year attrition at the Merchant Marine Academy (factors 43 and 84, respectively), and to third-class year attrition at the Air Force and Coast Guard Academies (factors 138 and 139). However, they related to attrition in and of themselves only at the Air Force Academy (see discussion of "variables independent from factors" in ch. 4) and were also more important to attrition at this Academy. At the other academies external factors combined with student characteristics at entry or academy environment factors when related to attrition. For example, first summer dropouts at the Merchant Marine Academy reported that national economic conditions decreased their desire to stay at the Academy. However, these dropouts also reported that their desire to stay was decreased by graduate school and changing maritime career opportunities as well as increased familiarity with the maritime service. They also reported more inaccurate expectations about the physical education training program. Fourth-class dropouts similarly affected by these opportunities and conditions outside the Academy were more likely to report that the frequency of challenges to their ability, as well as increasing familiarity with the maritime service, also decreased their desire to stay.

Third-class year dropouts at the Coast Guard Academy reported that their desire to stay was decreased by a 2-year enlisted service obligation if they resigned during their second or first-class years. They also held high opinions of their academic ability--they reported high mathematical and academic ability and intellectual self-confidence at the time they entered the Academy--which is interesting in view of Merton's description. Third-class dropouts also reported that national economic conditions decreased their desire to stay; they also were more likely to report that tuition-free education and long-term financial security were relatively unimportant in their decision to attend the Academy.

A substantial amount of third-class attrition at the Air Force Academy--as can be seen in Chart 11--is related to the adverse effect of national economic conditions on the dropouts' desire to stay and of the 2-year enlisted service obligation if they dropped out in their last 2 years. There were no student characteristics at entry or academy environment factors that we measured which were related to these variables in a factor-analytic sense.

Chart 11

EFFECT OF EXTERNAL FACTORS ON DESIRE TO STAY ON AIR FORCE ACADEMY THIRD CLASSMEN

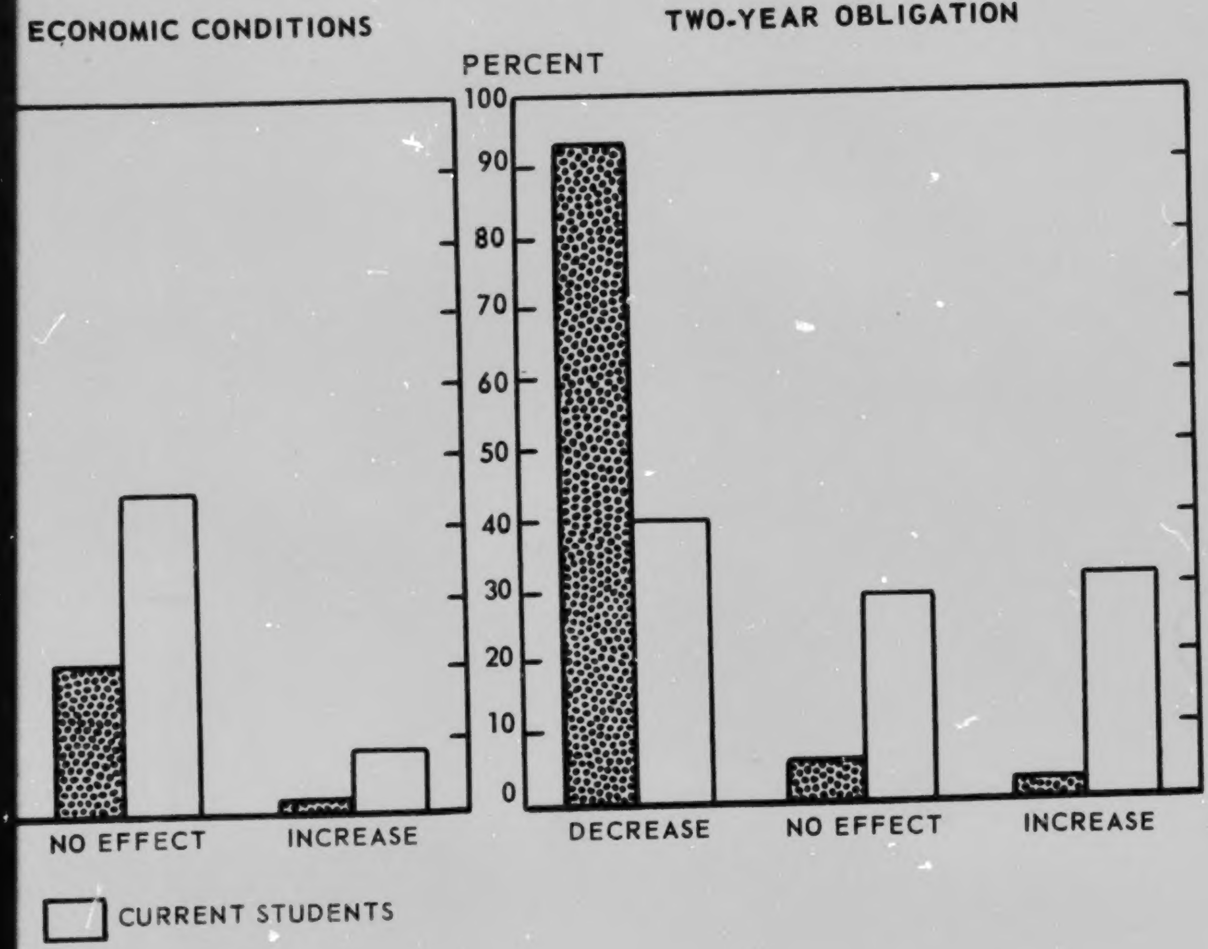


NATIONAL ECONOMIC CONDITIONS

TWO-YEAR OBLIGATION

Chart 11

EFFECT OF EXTERNAL FACTORS ON DESIRE TO STAY ON AIR FORCE ACADEMY THIRD CLASSMEN



CHAPTER 6

CONCLUSIONS AND LIMITATIONS OF THE STUDY

We recognized at the outset of this study that correlation does not mean causation and that after-the-fact surveying of the perceptions and activities of dropouts would present special problems of data interpretation. We were aware of the possibility of third-variable causation of the relationships we observed--especially the possibility of subsequent experience by the current students leading to their reporting on different "environments" than those experienced by the dropouts. And we were aware of the difficulties involved in determining the direction of the relationship between correlation variables: for instance, did attitudes about the academic program cause attrition or did attrition cause attitudes about the academic program?

There are two currently accepted methods in the behavioral and social sciences for clarifying the issues just raised. Both of these are designed to reduce the ambiguity these issues bring to data interpretation in the way of alternative explanations to observed relations. The first is the experimental method which was patently unavailable to us as a technique for assessing the cause of attrition because of the generally accepted requirement for random assignment of subjects to treatment conditions.[1] The second method consists of more sophisticated research designs than the one we used which require repeated surveying of the same population--these are the panel survey designs which permit cross-lagged, dynamic, and path correlational analyses. This method was considered unavailable because of the prohibitive time involved between the first survey and interpretable data, the respondent time involved in multiple surveys, and the costs of these surveys.

Because of the threats to valid data interpretation always present in survey research such as ours and because of the unavailability of more powerful research designs to rule out those threats, we conducted tests wherever possible of the validity of our interpretations and we have exercised deliberate caution in the wording of our conclusions and recommendations. The results of those tests--described in prior chapters of this enclosure--seem to us to generally support our interpretation of the data, but the readers are encouraged to reach their own conclusions. However, we have surely not been able to recognize all possible alternative interpretations of the data--and, therefore, put these alternatives to a test of their plausibility. For that reason the conclusions and recommendations presented in the main report have been stated with some caution.

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[1] Variations on the experimental method involving statistical approximations to random assignment--such as that used by Astin (1968a, 1968b, 1970, 1972)--were also unavailable because of the number of institutions and the number of possible environmental causes involved in this study--see ch. 1 of this enclosure.

Despite these limitations, we feel that the study has added substantially to knowledge of why students leave the academies before graduating. Perhaps its most important contribution is in spotlighting the significance of student-environment interactions and suggesting the specific nature of those interactions. Our data suggested--and on second thought, it only seems logical--that:

--A high level of commitment is much more important to retention when the philosophy of the Superintendent is "Those who can't hack it or don't wish to subject themselves to the type of environment that is inherent in military duty, especially when things are tough and dangerous, then we don't want them here." (Fellerman, 1975, p. 30) than when it is "If they're good enough to get in, they're good enough to stay in. We should make every effort to motivate and retain them." (Morman, 1975).

--Dropouts who are higher in the need for autonomy and creativity and lower in the need for deference and order should be more dissatisfied with the academy in general, and specifically with opportunities to exercise initiative and for personal growth and development, and feel that living in a disciplined, well-structured environment increased their desire to leave and should report conflict in trying to perform their roles adequately in such a bureaucratic context.

--Fourth-class year attrition is related to the academic program and specifically to the quality and availability of instruction since the bulk of attrition for academic reasons occurs during this time.

--Moreover, the Air Force Academy should have two to six times as much attrition related to this factor as the other academies since its superintendent increased the standards for retention of academically deficient students.

--Third-class year attrition is related to another aspect of the academic program; specifically to the technical emphasis in the curriculum and the opportunity to major in and take courses of interest because it is during this year that civilian college peers of academy students are declaring majors and it is at the end of this year that academy students must declare their career.

--Dropouts whose values are at variance with officers and students at the academy should find it easier to identify with civilian peers and other dropouts.

--Dropouts whose need for success is not as great as that of current students should find it difficult to survive in a competitive environment which demands a strong drive for achievement and dropouts whose beliefs about the environment imply a passive acceptance of things as they are should find it difficult to strive for control in an environment attempting to mold and select leaders.

--National economic conditions and external opportunities and pressures should affect students differently depending on their characteristics at entry and their academy experiences.

These are the types of conclusions we feel are warranted from a synthesis of the results of our study, the previous research done by the academies, and social-psychological research done by others. We recognize that these conclusions might, most legitimately, be considered hypothesis for further investigation. However, when we began the data analysis, there were 372 questions in our survey instrument, 250 in the American Council on Education freshman survey, and 15 items of information from academy records and the majority of this data represented specific hypotheses about why students leave. In addition, there were some 87 studies done by or for the academies in the last 5 years which we felt might provide reasons for students leaving. In a real sense the purpose of any scientific study is to reduce the area of uncertainty surrounding a phenomenon. We leave, from the mass of data we examined, eight major reasons why we believe students leave an academy before graduating.

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PRINCIPAL MEMBERS OF JOINT GAO-ACADEMY-EXECUTIVE AGENCY WORKING GROUP ON ACADEMY ATTRITION

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Capt. William E. Beusse, USAF--GAO Academy Project Coordinator (until October 1974)

Major David H. Roe, USAF--GAO Academy Project Coordinator (after October 1974)

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Lt. Col. Kermit M. Henninger--Office of the Deputy Chief of Staff for Personnel, Directorate of Personnel Management

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Mr. Richard Austin--Office of Budget and Program Analysis

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Col. Gerald Medsger--Director, Office of Institutional Research

Col. Richard Nye--Professor of History; Chairman, Academy Environment Study Group

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Dr. J. J. Mellinger--Director, Computer Operations

U. S. Air Force Human Resources Laboratory

Dr. Robert Bottenberg--Chief, Computer Operations

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Mr. Charles W. Thompson--Assistant Director, Federal Personnel and Compensation Division

Mr. John K. Harper--Principal Investigator, Academy Attrition Study

Mr. Allan Rogers--Mathematical Statistician, Financial and General Management Studies Division

ACADEMY RECORDS DATA

CLASSES OF 1973-1977

Title	Class Years Available				
	USMA	USNA	USAFA	USCGA	USMMA
Military Order of Merit[1]	All	1975 -1977	All	None	None
Date (Physically) Departed	All	All	All	All	All
Academic Grade Point Average[1]	All	All	All	All	All
Scholastic Aptitude Test--Verbal	All	All	All	All	All
Scholastic Aptitude Test--Mathematics	All	All	All	All	All
College Entrance Examination Board--English Composition	All	All	All	All	All
College Entrance Examination Board--Mathematics Achievement	All	All	All	All	All
Converted (Standarized) High School Class Rank	All	All	All	All	All
Composite Admissions Rating	All	All	All	All	All
High School Athletic Activities Score	1975-77	1974-77	All	None	None
High School Nonathletic Activities Score	1975-77	1974-77	All	None	None
Recruited Athlete Designator	All	1975-77	All	None	None
Amercian College Testing Program--Verbal	1976-77	None	None	None	None
American College Testing Program--Mathematics	1976-77	None	None	None	None

ACADEMY RECORDS DATA (continued)

CLASSES OF 1973-1977

Title	Class Years Available				
	USMA	USNA	USAFA	USCGA	USMMA
Physical Aptitude Exam Score	All	None	All	None	None

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[1] Academic Grade Point and Military Order of Merit were generally not available for those students who left prior to at least the first academic semester.

AMERICAN COUNCIL ON EDUCATION FRESHMAN

SURVEY ITEMS FOR CLASSES OF 1974-1977

(ENTRY YEARS 1970-1973)

1973 Item No.	1973 Item Description	1972	1971	1970
1.	Sex	X	X	X
2.	Citizenship	X	-	X
3.	Age	X	X	X
4.	Admissions data	X	-	-
5.	Distance of college from home	X	X	X
6.	Degree aspirations	X	X	X
7.	Enrollment status	X	-	-
8.	Prior credit at same institution	X	-	-
9.	Transfer status	X	X	X
10.	Year graduated from high school	X	X	X
11.	Average high school grade	X	X	X
12.	Reasons for choice of particular college	X	X	-
13.	Credit hours taken during fall term	-	-	-
14.	Veteran status	X	X	X
15.	Racial background	X	X	X
16.	Religious preference of student and parents	X	X	X
17.	Marital status	X	X	X
18.	Current number of children	-	-	-
19.	Expected number of children	-	-	-
20.	Parents' and spouse's education	X	X	X
21.	Parental family income	X	X	X
22.	Number of siblings; number of siblings in college	-	-	-
23.	Employment status of parents	X	-	-
24.	Concern about finances	X	X	X
25.	Sources of financial support	X	X	X
26.	Residence during fall term	-	-	-
27.	Financial independence of student	-	-	-
28.	Student's total income	-	-	-
29.	Political self-characterization	X	X	X
30.	Student's career choice and parents' and spouse's occupation	X	X	X
31	Items important in choosing long-term career	-	-	-
32.	Attitudes on public and academic issues	X	X	X

AMERICAN COUNCIL ON EDUCATION FRESHMAN

SURVEY ITEMS FOR CLASSES OF 1974-1977 (continued)

(ENTRY YEARS 1970-1973)

1973 Item No.	1973 Item Description	1972	1971	1970
33.	Choice of undergraduate major	X	X	X
34.	Values (life goals)	X	X	X
35.	Chances that certain events will occur during college	X	X	X

Note: The content of many of the items has varied somewhat over the survey years. For exact content and wording, the earlier Student Information Forms should be consulted.

RATIONALE FOR QUESTIONNAIRE ITEMS

1. Assumption is that the groups represent different kinds of people with different motivations and experiences: e.g., prep school and active duty entrants are more aware of military training rigors. USNA has some data to support assumption.

2. Those from smaller schools may have a more difficult adjustment because of the largeness of the entering classes at academies, hypothesis suggested by academy officials.

3. Measure of intensity of desire to enter and organizational commitment. USMA has data to support hypothesis that the earlier the commitment, the higher the probability of graduating.

4. Prior experience opportunities or vicarious knowledge leads to more realistic expectations which has been shown in industrial and organizational studies to be related to attrition. USMMA data has shown that having an uncle who attended academy is strongly related to retention supporting Claude Levi-Strauss' findings on importance of uncle in forming kinship relations.

1. In the year prior to entering the Academy, what were you doing? (Mark all that apply)

Attending high school .... ○
Attending an academy sponsored prep school..... ○
Serving on active military duty .... ○
Attending a university, college, or junior college... ○
Other.................................... ○

2. About how many students were in your high school graduating class? (Mark one)

100 or less .... ○
101 to 250.................... ○
251 to 500.................... ○
Over 500 .... ○

3. When did you first seriously consider attending the Academy? (Mark one)

Before 7th grade .... ○
In 7th or 8th grade .... ○
In 9th grade .... ○
In sophomore year of high school .... ○
In junior year of high school........ ○
In senior year of high school........ ○
After high school................ ○

4. Did you have any close friends, family, or relatives that attended an academy or were career military or maritime personnel before you entered the Academy? (Mark one)

Yes ..... ○ No ..... ○

(IF YES, continue; IF NO, go to question No. 5)

What was the relationship of these people to you?
(Mark all that apply)

	Attended Academy	**Career Service**
Father	○	○
Brother(s)	○	○
Uncle(s)	○	○
Other relatives	○	○
Close friends	○	○

5. Two hypotheses will be tested with this item (a) participation in extracurricular activities provided experience in managing demands on time, an important a ability for successful adaption to academy and (b) prior experience with particular academy-like activities should also contribute to successful adaption (e.g., sports, leadership and military activities, science and academic accomplishments).

5. The following statements deal with accomplishments or activities that might possibly apply to your high school years. Think back to those years and mark "yes" to each one that applies. (Mark all that apply)

	Yes
Was elected officer of one or more student organizations (recognized by the school)	○
Received a high rating (Good, Excellent) in a state or regional music contest	○
Participated in a state or regional speech or debate contest	○
Had a major part in a play or was a stage manager or director	○
Won a varsity letter (sports)	○
Won a prize or award in an art competition	○
Edited or worked on the school paper, yearbook, or literary magazine	○
Had poems, stories, essays, or articles published	○
Participated in a National Science Foundation summer program	○
Placed (first, second, or third) in a state or regional science contest	○
Was a member of a scholastic honor society	○
Won a Certificate of Merit or Letter of Commendation in the National Merit Program	○
Was valedictorian or salutatorian of my graduating class	○
Was named to an All-City, All-County, All-State, or All-American high school athletic team	○
Was a member of a high school ROTC unit	○
Held a steady job while attending school	○
Participated in a scouting organization for at least three years (Boy Scouts, Explorer Scouts, Sea Cadets)	○

6. Measure of cost of participating in academy in terms of foregone opportunities which may effect level of aspiration and thus perception of available alternatives and level of satisfaction needed to stay. (See: March and Simon, Ghiselli and Brown)

6. How many definite scholarship offers did you turn down to accept an appointment to the Academy? (Mark one)

None . . . . ○
One . . . . ○
Two . . . . ○
Three . . . . ○
Four or more . . . . ○

What type of scholarship(s) were these?
(Mark all that apply)

Athletic . . . . ○
Academic . . . . ○
Military . . . . ○

7. Typical measure of personality characteristics from self-concept domain hypothesized relevant to person-environment fit. Item was asked in ACE survey of the class of 1975, so an estimate of the reliability of recall after 3 years can be made and used as a very crude check of the soundness of our recall technique.

7. Rate yourself on each of the following traits as you really thought you were at the time you entered the Academy when compared with the average person of your age at that time. (Mark one for each item)

	Highest 10%	Above average	Average	Below average	Lowest 10%
Academic ability	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Athletic ability	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Artistic ability	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Cheerfulness	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Drive to achieve	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Leadership ability	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Mathematical ability	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Mechanical ability	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Originality	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Political conservatism	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Political liberalism	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Popularity	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Popularity with the opposite sex	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Public speaking ability	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Self-confidence (intellectual)	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Self-confidence (social)	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Sensitivity to criticism	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Stubbornness	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Understanding of others	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Writing ability	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ

8. USMA has data showing that reason for entering is predictive of attrition in terms of whether the reason was an external motive (e.g., parents wanted me to attend, honor and prestige of appointment) or internalized motive (e.g., wanted to serve country, emphasis on physical development and leadership). Reasons may be related to instrumentality and intrinsic values of activities. (see: Spencer. "A Comparative Study Of Early Resignations From the USMA for the Class of 1973" USMA--OIR, 4/70.) Also, parts of item represent hypotheses of officials and students.

8. Below are some reasons that might have influenced your decision to attend the Academy. How important was each reason in your decision to enter?

(Mark one for each item)	Very important	Somewhat important	Not important or not applicable
Parents wanted me to attend	○	○	○
Not accepted at my first choice (another academy or a civilian college)	○	○	○
Honor and prestige of an Academy appointment	○	○	○
Academic reputation of the Academy	○	○	○
Graduation offered social prestige	○	○	○
Opportunity to play intercollegiate athletics	○	○	○
Wanted to serve my military obligation as an officer	○	○	○
Desire to fly	○	○	○
Desire to go to sea	○	○	○
Pay while attending Academy	○	○	○
Opportunity for travel and adventure after graduation	○	○	○
Emphasis on leadership training and physical development at Academy	○	○	○
Wanted to serve my country	○	○	○
Graduation offered the opportunity for long run financial security	○	○	○
Felt it would help me attain high rank in the service	○	○	○
Tuition-free education	○	○	○

9. Lyman Porter and Richard Steers recently reviewed a large number of studies concluding that attrition is related to accuracy of expectations about organizational life. Both USMA and USAFA have made major efforts to increase accuracy of candidate expectations and this item should measure the impact of those efforts. (see: "Psychological bulletin," 1973.)

9. How accurate were your expectations at the time of entry about the following aspects of Academy life?

(Mark one for each item)	Very accurate	Generally accurate	Neither accurate nor inaccurate	Generally inaccurate	Very inaccurate	No basis to judge
First summer	○	○	○	○	○	○
Fourth Class System	○	○	○	○	○	○
Academic program	○	○	○	○	○	○
Regimentation	○	○	○	○	○	○
Physical education training	○	○	○	○	○	○
Opportunity for self-improvement	○	○	○	○	○	○
Demands on my time	○	○	○	○	○	○
Student privileges and leave	○	○	○	○	○	○
The Honor Concept or Honor Code	○	○	○	○	○	○

10. External events hypothesized by academy officials and students to cause attrition.

10. Which of the following statements are (or were) applicable to you as a student at the Academy? (Mark all that apply)

	Yes
I felt I could have transferred to almost any school of my choice	○
My girl friend wanted me to get married before I graduated	○
Friends of mine were involved in protests against the Vietnam war	○
My girl friend became serious about somebody else	○
I had an opportunity to assume the family business	○
My family suffered an acute hardship (death, illness, divorce, financial loss, etc)	○
My term of enlisted service expired	○
None of the above	○

11. Unobtrusive measure of satisfaction. USMA had data on variants of this item asked a number of classes since 1950, so a comparison with historical trends is possible.

12. Direct measure of overall satisfaction with academy life. USMA has also asked this question since 1950. In addition, it was asked in a national survey of engineering and professional school students in 1969. (See: Bridges. "The image of the USMA among cadets," USMA-OIR, 12/71.)

11. Would you encourage a close friend to come to the Academy you attend (or attended) if they were qualified and motivated? (Mark one)

Definitely yes . . . . ○
Probably yes. . . . . ○
Undecided . . . . ○
Probably no . . . . ○
Definitely no . . . . ○

12. Your emotional feelings about the Academy you attend (or attended) can best be characterized by which of the following? (Mark one)

Very strong attachment . . . . ○
Warm feelings, but not very strong . . . . ○
I have mixed feelings . . . . ○
More negatively disposed than positively disposed . . . . ○
I strongly dislike it. . . . . ○

QUESTIONS 13 THRU 18 ASK ABOUT YOUR EXPERIENCES AND FEELINGS AT CERTAIN TIMES DURING YOUR ACADEMY CAREER. ANSWER THESE QUESTIONS IN TERMS OF YOUR FEELINGS DURING THE TIMES WHICH APPLY TO YOU. FOR EXAMPLE, IF YOU LEFT BEFORE BEGINNING THE FOURTH CLASS ACADEMIC YEAR, YOU SHOULD ANSWER ONLY THE "FIRST SUMMER" PARTS OF THE QUESTIONS. IF YOU ARE CURRENTLY A THIRD CLASSMAN, LEFT DURING OR COMPLETED A THIRD CLASS YEAR, YOU SHOULD ANSWER THE "FIRST SUMMER" AND "4TH CLASS" PARTS AS YOU THINK YOU WOULD HAVE DURING THOSE TIMES, AND THE "3RD CLASS" PART AS YOU FEEL NOW OR FELT WHEN YOU LEFT OR COMPLETED THAT YEAR.

13. Indicate whether you felt bothered by the following things during (A) your first summer, (B) your fourth class academic year, and (C) your third class year.

(Mark one for each item for each year that applies to you)

(N) – Almost never
(R) – Rarely
(S) – Sometimes
(O) – Rather often
(A) – Nearly all the time

ⓃⓇⓈⓄⒶ

	(A) 1st Summer	(B) 4th Class Year	(C) 3rd Class Year
Not knowing what Academy officials and upperclassmen expected of me	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ
Not knowing what my superior commissioned officers and upperclassmen thought of me or how they evaluated my performance	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ
Thinking that the amount of work I had to do might interfere with how well it got done	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ
Feeling that the things I had to do were against my judgment	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ
Being unclear just what the scope and responsibilities of my role were	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ	ⓃⓇⓈⓄⒶ

13. An abbreviated form of the Job Tension Index used in a nationwide study by the Survey Research Center in the mid-1960s to measure job stress resulting from role ambiguity and organizational stress. Substantial body of research shows relationship between ambiguity, stress, satisfaction, and turnover. (See: Kahn et al. Organizational stress," 1964; and for example, Herbiniak and Alutto. Administrative Science Quarterly, 12/72.) In addition, parts of the item were offered as hypotheses by academy officials and administrators.

14. Indicate the extent to which each statement is (or was) true of members of your unit. We realize that people are different. Nevertheless, try to give us your best overall opinion.

NOTE: UNIT MEANS ELEMENT, SECTION OR COMPANY DURING 1ST SUMMER – – COMPANY OR SQUADRON DURING ACADEMIC CLASS YEARS.

(Mark one for each item for each year that applies to you)

(1) – Very great extent
(2) – Great extent
(3) – Some extent
(4) – Little extent
(5) – Very little extent

①②③④⑤

	(A) 1st Summer	(B) 4th Class Year	(C) 3rd Class Year
CLASSMATES IN YOUR UNIT			
Encouraged each other to give best effort	①②③④⑤	①②③④⑤	①②③④⑤
Maintained high standards of performance	①②③④⑤	①②③④⑤	①②③④⑤
Listened to what I said	①②③④⑤	①②③④⑤	①②③④⑤
Were easy to approach	①②③④⑤	①②③④⑤	①②③④⑤
Merited my confidence and trust	①②③④⑤	①②③④⑤	①②③④⑤
UPPERCLASSMEN IN YOUR UNIT			
Gave special attention to those who needed help	①②③④⑤	①②③④⑤	①②③④⑤
Maintained high standards of performance	①②③④⑤	①②③④⑤	①②③④⑤
Listened to my problems	①②③④⑤	①②③④⑤	①②③④⑤
Were easy to approach	①②③④⑤	①②③④⑤	①②③④⑤
Had confidence and trust in me	①②③④⑤	①②③④⑤	①②③④⑤

14. Typically used items in studies of leadership and group processes drawn from research by the Ohio State University and the Survey Research Center (particularily Rensis Likert's work on organizational effectiveness). Substantial body of research shows that turnover is a function of the amount of social-emotional support in a stressful environment. (See: Vroom "Work and motivation," 1964; Taylor and Bowers "Survey of organizations," 1971.)

15. Measure of perceived importance to the academy of various activities. Discrepancy between this item and the next measures individual satisfaction with emphasis on the activities.

15. How much emphasis is (or was) placed upon the following?
(Mark one for each item for each year that applies to you)

(H) – High emphasis
(M) – Moderate emphasis
(L) – Low or no emphasis

ⒽⓂⓁ

	1st Summer	**4th Class Year**
Physical conditioning	ⒽⓂⓁ	ⒽⓂⓁ
Drills and ceremonies	ⒽⓂⓁ	ⒽⓂⓁ
Athletics	ⒽⓂⓁ	ⒽⓂⓁ
Learning professional knowledge for recitation to upperclassmen (ranges of weapons, military ranks and insignia, etc.)	ⒽⓂⓁ	ⒽⓂⓁ
Learning other information for recitation to upperclassmen (sports scores, current movies, etc.)	ⒽⓂⓁ	ⒽⓂⓁ
Inspections	ⒽⓂⓁ	ⒽⓂⓁ
Opportunity to exercise individual initiative	ⒽⓂⓁ	ⒽⓂⓁ
Comaraderie and esprit de corps	ⒽⓂⓁ	ⒽⓂⓁ

ATTACHMENT IV

ATTACHMENT IV

16. How much emphasis do you feel should be placed on each of the following? Bear in mind the objectives of the Academy as you understand them. (Mark one for each item for each year that applies to you)

(H) – High emphasis
(M) – Moderate emphasis
(L) – Low or no emphasis

Ⓗ Ⓜ Ⓛ

	1st Summer	4th Class Year
Physical conditioning	Ⓗ Ⓜ Ⓛ	Ⓗ Ⓜ Ⓛ
Drills and ceremonies	Ⓗ Ⓜ Ⓛ	Ⓗ Ⓜ Ⓛ
Athletics	Ⓗ Ⓜ Ⓛ	Ⓗ Ⓜ Ⓛ
Learning professional knowledge for recitation to upperclassmen (ranges of weapons, military ranks and insignia, etc.)	Ⓗ Ⓜ Ⓛ	Ⓗ Ⓜ Ⓛ
Learning other information for recitation to upperclassmen (sports scores, current movies, etc.)	Ⓗ Ⓜ Ⓛ	Ⓗ Ⓜ Ⓛ
Inspections	Ⓗ Ⓜ Ⓛ	Ⓗ Ⓜ Ⓛ
Opportunity to exercise individual initiative	Ⓗ Ⓜ Ⓛ	Ⓗ Ⓜ Ⓛ
Comaraderie and esprit de corps	Ⓗ Ⓜ Ⓛ	Ⓗ Ⓜ Ⓛ

17. Measures of Erving Goffman's concept of "the total institutional environment" as a socialization with various personality types. (See: Goffman (ed.) Asylums, 1961.)

17. How adequate was your contact (visits, letters, telephone calls) with your family and friends during the following times? (Mark one for each time that applies to you)

	1st Summer	**4th Class**
Much more than adequate	○	○
Somewhat more than adequate	○	○
About the right amount	○	○
Somewhat less than adequate	○	○
Much less than adequate	○	○

18. (same as 17)

18. How satisfied are (or were) you with the opportunities to be alone during the following times? (Mark one for each time that applies to you)

	1st Summer	**4th Class**
Very satisfied	○	○
Somewhat satisfied	○	○
Neither satisfied nor dissatisfied	○	○
Somewhat dissatisfied	○	○
Very dissatisfied	○	○

19. Responses at time of entry are available from ACE survey on this item, so changes in careet committment can be estimated.

19. How likely are you to make the military or the maritime industry your career? (Mark one)

Definitely will make a career ○
Probably will make a career ○
Uncertain ○
Probably will not make a career ○
Definitely will not make a career ○

20. Substantial body of research showing the more similar the individual's attitudes and beliefs to those of the reference group the more attractive the group and the less likely is the individual to leave. (See: Vroom. Work and motivation, 1964.)

20. How similar in attitudes and beliefs are you (or were you while at the Academy) to the following?

	Very similar	Somewhat similar	No opinion	Somewhat dissimilar	Very dissimilar
Students at the Academy	○	○	○	○	○
Students who recently graduated from the Academy	○	○	○	○	○
Students you knew who resigned	○	○	○	○	○
Other students you knew who were separated	○	○	○	○	○
Officers at the Academy	○	○	○	○	○
Other officers	○	○	○	○	○
Other military or maritime personnel	○	○	○	○	○
Students attending civilian colleges	○	○	○	○	○
Students at other academies	○	○	○	○	○
Peers in home town	○	○	○	○	○

21. If you have ever consulted any of the people listed below about voluntarily resigning from the Academy, indicate the type of encouragement provided. IF YOU DID NOT CONSULT ANYONE, MARK HERE ► ○ AND GO TO QUESTION 23.

(Mark only those you consulted)	Strongly encouraged leaving	Mildly encouraged leaving	Did not encourage either way	Mildly encouraged staying	Strongly encouraged staying
Family	○	○	○	○	○
Girl friends	○	○	○	○	○
Other friends away from the Academy	○	○	○	○	○
Former Academy students who resigned	○	○	○	○	○
Academy graduates	○	○	○	○	○
Roommates	○	○	○	○	○
Other classmates	○	○	○	○	○
Commissioned Academy officers (other than academic faculty)	○	○	○	○	○
Civilian Academy faculty members	○	○	○	○	○
Military faculty members	○	○	○	○	○
Cadet/Midshipmen officers	○	○	○	○	○
Upperclassmen	○	○	○	○	○

21. Measures the amount of external and internal pressure to leave. A number of theorists (e.g., March and Simon, Strauss) have stressed the effect of significant others in understanding withdrawal from particular organizations. The research supporting this contention for military populations includes: Butler, R. P., "Survey of Careerists and Non-Carrerists from the USMA Classes of 1963 through 1967," West Point, NY Office of Institutional Research, April 1971; Lockman, R. F., Stoloff, P. H., and Allbriton, A. S., "Motivational Factors in Accession and Retention Behavior," Arlington, VA. Center for Naval Analyses, Research Contribution 201, January 1972, and, Glickman, A. S., Goodstadt, B. E., Korman, A. K., and Romanczuk, A. P., "Navy Career Motivation Programs in an All-Volunteer Condition; I. A Cognitive Map of Career Motivation," Washington, D. C.: American Institutes for Research, R 73-3, March 1973.

22. Measures extent of influence of pressure to leave.

22. How influential was the advice of each of the people you consulted? (Mark one for each group of people)

	Very influential	Somewhat influential	Not influential
Family	○	○	○
Girl friends	○	○	○
Other friends away from the Academy	○	○	○
Former Academy students who resigned	○	○	○
Academy graduates	○	○	○
Roommates	○	○	○
Other classmates	○	○	○
Commissioned Academy officers (other than academic faculty)	○	○	○
Civilian Academy faculty members	○	○	○
Military faculty members	○	○	○
Cadet/Midshipmen officers	○	○	○
Upperclassmen	○	○	○

23. Measures extent of impact of external events or motivation to stay at academy.

23. What effect have the following had on your desire to stay at the Academy (or did they have at the time you were there)? (Mark one for each item)

	Greatly increased	Somewhat increased	No effect	Somewhat decreased	Greatly decreased	No basis to judge
Antimilitaristic attitudes of some people today	○	○	○	○	○	○
Attitudes of the local community toward Academy students	○	○	○	○	○	○
End of U.S. involvement in Southeast Asia	○	○	○	○	○	○
Adverse publicity about the military	○	○	○	○	○	○
Changing military or maritime career opportunities	○	○	○	○	○	○
National economic conditions	○	○	○	○	○	○
Stigma associated with resigning from the Academy	○	○	○	○	○	○
Graduate school opportunities	○	○	○	○	○	○
Changes in service personnel policies	○	○	○	○	○	○
Obligation to perform enlisted service after resigning from the Academy	○	○	○	○	○	○
Increasing familarity with the military or maritime service	○	○	○	○	○	○

24. Extensive research shows the greater the density of friendship relations in reference group the less likely the individual is to leave the group (e.g., Rose's study of AWOL correlates in WWII, referenced in Tannenbaum. Social psychology of organizations, 1964).

24. How many members of your current (or last) company or squadron do (or did) you consider to be your close friends? (Mark one)

1 – 2	○
3 – 5	○
6 – 10	○
11 – 20	○
Over 20	○

25. Attitudes of friends may be predictive of attrition. (See: item #21.)

25. Of those close friends in your company or squadron, how do (or did) they generally feel about the Academy?
(Mark one)

Very positive . . . . ○
Somewhat positive . . . . ○
Somewhat negative. . . . . ○
Very negative . . . . ○

26. Measure of preceived equity and justice in the environment which should be related to satisfaction and consequently to attrition.

26. Indicate how frequently the following statements are (or were) true at your Academy

(Mark one for each item)	All of the time	Most of the time	Some of the time	None of the time
Student regulations tend to be applied uniformly	○	○	○	○
Disciplinary action tends to be consistent for the same infraction	○	○	○	○
Disciplinary action is appropriate to the infraction	○	○	○	○
Students tend to consistently comply with the regulations	○	○	○	○

27. Effect of organizational inducements in terms of preceived reputation and quality on motivation to stay.

27. What effect have the following Academy characteristics had on your desire to stay (or did they have at the time you were there)?

(Mark one for each item)

	Greatly increased	Somewhat increased	No effect	Somewhat decreased	Greatly decreased
Opportunity for personal growth and development	○	○	○	○	○
Living in a competitive environment	○	○	○	○	○
Belonging to an institution with a prestigious tradition	○	○	○	○	○
Frequent challenges to ability	○	○	○	○	○
Leading a disciplined, well-structured life	○	○	○	○	○
Variety of courses offered	○	○	○	○	○
Quality of academic instruction	○	○	○	○	○
Quality of military or maritime training program	○	○	○	○	○

28. GENERAL:

Most of the questions in this section will be used to form subgroups of those who left to determine whether a common set of causes leads to various kinds of attrition.

IF YOU RESIGNED OR WERE INVOLUNTARILY SEPARATED, GO TO THE NEXT QUESTION (NO. 28). IF YOU GRADUATED OR ARE CURRENTLY A STUDENT, MARK HERE► ○ AND GO TO QUESTION NO. 37.

28. At the time of your resignation or separation, did you want to leave the Academy? (Mark one)

Yes . . . . . ○ No . . . . . ○

29. What was the official basis of your separation from the Academy? (Mark one)

○ Voluntary resignation – **SKIP to question No. 32**

○ Involuntary separation – **GO to question No. 30**

30. What was the official reason for your separation? (Mark one)

Medical . . . . ○
Academic . . . . ○
Other . . . . ○

31. Did you intentionally cause your separation? (Mark one)

Yes . . . . . ○ No . . . . . ○

SKIP to question No. 36

32. and 33.

Measure the extent to which the institution is generally concerned about attrition and practices a "hard-out" policy.

32. (A) Which of the following people did you talk with about your resignation? (B) About how long did these talks last? (Mark all that apply in each column)

(1) – 15 minutes or less
(2) – 16 to 30 minutes
(3) – 30 minutes to an hour
(4) – 1 to 2 hours
(5) – More than 2 hours

①②③④⑤

(A) Talked with	(B) Length of time				
○ Superintendent	①	②	③	④	⑤
○ Commandant	①	②	③	④	⑤
○ Psychologist or psychiatrist	①	②	③	④	⑤
○ Commissioned officer-in-charge of unit	①	②	③	④	⑤
○ Student Company/ Squadron commander	①	②	③	④	⑤
○ Platoon/Squad or Flight commanders	①	②	③	④	⑤
○ Faculty member	①	②	③	④	⑤
○ Chaplain	①	②	③	④	⑤
○ Other Academy officials	①	②	③	④	⑤

34. Measure of the effect of service obligation after graduation on attrition.

34. Would you still have resigned if the service obligation after graduation had been the following? (Mark one for each item)

	Yes	No
More than 5 years	○	○
5 years	○	○
4 years	○	○
3 years	○	○
2 years	○	○
1 year	○	○
No obligation	○	○

35. Did you voluntarily resign to avoid involuntary separation for any of the following reasons? (Mark one)

No . . . . ○
Yes – Academic . . . . . . ○
Yes – Disciplinary . . . . ○
Yes – Honor . . . . ○
Yes – Other . . . . ○

36. Related to earlier and subsequent hypotheses about external events and academy factors causing attrition.

36. Within the first six months after leaving the Academy which of the following statements were true for you?
(Mark all that apply)

Entered active military service as an enlisted man . . . . ○
Joined the Reserves or National Guard . . . . . ○
Entered a military officer training program . . . . ○
Continued undergraduate studies elsewhere . . . . ○
Continued undergraduate studies with a scholarship or promise of a scholarship . . . . ○
Continued undergraduate studies with a major in an area not available at the Academy . . . . ○
Regretted being separated or resigning . . . . . ○
Got married . . . . ○
Joined the family business . . . . ○
Was unemployed most of the time . . . . ○
Employed full-time . . . . ○

IF YOU COMPLETED EVEN JUST THE FIRST DAY OF YOUR 4TH CLASS ACADEMIC YEAR, GO TO THE NEXT QUESTION (NO. 37).

IF YOU RESIGNED OR WERE SEPARATED FROM THE ACADEMY DURING YOUR FIRST SUMMER, STOP HERE – – YOU HAVE COMPLETED THE QUESTIONNAIRE. PLEASE RETURN IT IN THE POSTAGE PAID, SELF ADDRESSED ENVELOPE TO:

INTRAN PROCESSING CENTER
4555 West 77th Street
Minneapolis, Minnesota 55435

THANK YOU FOR YOUR COOPERATION.

37. Item provides basis for testing several interrelated hypotheses about effects of time demands on attrition.

37. Which of the following intercollegiate athletic teams __are__ you a __member__ (__or were__ you at the time you were at the Academy)? (Mark all that apply)

Football . . . . . . ○
Basketball . . . . ○
Baseball . . . . . . ○
Fencing . . . . . . ○
Soccer . . . . ○
Sailing . . . . . . ○
Swimming . . . . ○
Golf . . . . ○
Tennis . . . . ○
Lacrosse . . . . . . ○
Gymnastics . . . . ○
Squash . . . . ○
Hockey . . . . ○
Crew . . . . ○
Wrestling . . . . ○
Track/cross country . . ○
Rifle/pistol . . . . ○
Boxing . . . . ○
Skiing . . . . ○
NONE . . . . ○
OTHER . . . . ○

38. and 39.
Hypothesis being tested is that to the extent there are positive discrepancies between self-preceiptions and institutional recognition there should be dissatisfaction leading to attrition.

38. In general, how did your __last__ leadership rating compare with the leadership ratings of your classmates? (Mark one)

Highest 10% . . . . . ○
Above average . . . . . . ○
Average . . . . ○
Below average . . . . . . ○
Lowest 10% . . . . ○
Don't know or recall . ○

39. How do you personally feel your __true__ leadership ability compares with the leadership ability of your classmates? (Mark one)

Highest 10% . . . . . ○
Above average . . . . . . ○
Average . . . . ○
Below average . . . . . . ○
Lowest 10% . . . . ○
Don't know . . . . ○

40. Measure of satisfaction with various aspects of academy life, hypothesized relevant to attrition by students and officials.

40. How satisfied are you (or were you at the time you were at the Academy) with the following aspects of the Academy? (Mark one for each item)

	Very satisfied	Somewhat satisfied	Neither satisfied nor dissatisfied	Somewhat dissatisfied	Very dissatisfied
Selection of student chain-of-command	○	○	○	○	○
Student influence in policy decisions	○	○	○	○	○
Opportunity to participate in intramural sport of choice	○	○	○	○	○
Opportunity to exercise initiative	○	○	○	○	○
Opportunity to sleep	○	○	○	○	○
Availability of advice, guidance and feedback	○	○	○	○	○
Opportunity to major in, concentrate in, or take subjects of interest	○	○	○	○	○
Control over your pay	○	○	○	○	○
Intellectual and educational challenge in the academic curriculum	○	○	○	○	○
Emphasis on technical matters in the curriculum	○	○	○	○	○
Individual instruction available	○	○	○	○	○
Leave and liberty	○	○	○	○	○
Availability of free time at the Academy	○	○	○	○	○
Opportunity for female companionship	○	○	○	○	○
Student-center-type facilities (e.g., college student union building)	○	○	○	○	○
Official explanations of procedures and practices	○	○	○	○	○
Leadership qualities of officers and staff	○	○	○	○	○

41. Typically used items in checklists for evaluating college faculty classroom performance. (See: Whitlock "Faculty evaluation," University of Tennessee, mimeograph, 1967).

41. About how many of your courses exhibited the following characteristics? (Mark one for each item)

	All or almost all	Many	About half	Some	One or none
Homework load was reasonable for course	○	○	○	○	○
The instructor called students by their first names	○	○	○	○	○
The instructor encouraged a lot of class discussion	○	○	○	○	○
The instructor motivated me toward a career in the service or maritime industry	○	○	○	○	○
Frequency of quizzes and tests were reasonable for course	○	○	○	○	○
There was fairness in grading	○	○	○	○	○
The instructor knew the subject matter well	○	○	○	○	○
The instructor stimulated my interest in the subject	○	○	○	○	○
Individual instruction was given to those in need	○	○	○	○	○

42. Variant of "peer environment measure" from Alexander Astin's Inventory of College Activities used to study impact of colleges on their students. (See: The college environment, 1968).

42. Below is a list of things which students sometimes do. Indicate how often you did the following things during the current academic year (or your last academic year) at the Academy. (Mark one for each item)

	Frequently	Occasionally	Once or twice	Not at all
Visited nearby community or large city	○	○	○	○
Came in late to class	○	○	○	○
Arranged a date for another student	○	○	○	○
Overslept and missed a scheduled activity	○	○	○	○
Failed to complete a homework assignment on time	○	○	○	○
Openly disagreed with an instructor in class	○	○	○	○
Attended religious services	○	○	○	○
Played athletics in free time	○	○	○	○
Asked an instructor for advice after class	○	○	○	○
Walked tours, served confinements; restricted or extra duty	○	○	○	○
Received demerits	○	○	○	○
Did extra (unassigned) reading for a course	○	○	○	○
Tutored another student	○	○	○	○
Missed scheduled activity because of illness	○	○	○	○
Smoked cigarettes	○	○	○	○
Discussed politics	○	○	○	○
Drank alcoholic beverages	○	○	○	○
Discussed sports	○	○	○	○
Participated in a prank	○	○	○	○
Skipped a class	○	○	○	○
Dated	○	○	○	○
Was a guest at faculty or officer's home	○	○	○	○
Snacked between meals	○	○	○	○
Studied after taps	○	○	○	○
Was tutored by another student	○	○	○	○

TO : Regional Managers-Boston, Denver, New York and Washington

FROM : Deputy Director, FPCD-David P. Sorando

SUBJECT: On-site Questionnaire Administration for Review of the Management and Administration of Federal Service Academies (Code 962008)

This memorandum confirms agreements reached by telephone between Mr. Charles Thompson of my staff and members of your staff regarding procedures to be used in the questionnaire administration to current students. It also provides logistical information on the receipt of the questionnaires from the American Council of Education (ACE) and the shipment of completed questionnaires back to the American Council of Education. Attachment I contains verbal instructions to be read at the administration; Attachment II is a checklist to be used for describing the conditions of administration.

Two very important objectives will be achieved by the control procedures outlined below. First, they will give the impression, as well as actually insure, that the individual respondent's answers will not be seen by any academy official. The impression of confidentiality is as important in obtaining frank and honest responses as the actual after-the-fact maintenance of confidentiality. Second, they will minimize any bias in responses due to major variances in administration conditions. To the extent that major variances exist, we are less sure that different responses from students at the various academies are due to differences which actually exist at the academies or to the variances in conditions of administration.

ADMINISTRATION PROCEDURES

If at all possible, the questionnaires should be administered en masse so as to insure similar administration conditions and also to provide easier physical control by GAO over the questionnaires. Since each questionnaire will have an individual's name on it, it may be necessary to have academy officials assist in the distribution. In no case, however, should academy personnel be involved in collecting the completed questionnaires. In addition, an appropriate academy official must introduce the GAO official who will explain the survey (see Attachment I, "Verbal Instructions for On-Site Administration of GAO Survey").

We feel it is very important that a senior-level GAO official explain the survey to the students. His presence will command the respect of not only the academy students, but also of the academy officials, and will underline the importance that Mr. Staats places on the students' frank and considered responses. It is essential that the questionnaire be introduced exactly as shown in the attached verbal instructions so that students at one academy have the same perspective and information as students at the other academies. These instructions specifically preclude the GAO staff from answering any questions after the students have begun the questionnaire. Should any student persist in attempting to ask a question about the questionnaire after that time, he should be told to answer his question as best he can at the moment and an answer will be provided when the administration is completed. The rationale for this procedure is given in the verbal instructions.

The following procedures should be followed for those who were not present during the normal days of administration. If a group, or groups, of moderate size are involved--such as athletic teams or extracurricular clubs who were away during administration--an attempt should be made to administer the questionnaire to these groups en masse following the procedures outlined above. The administration should be at the earliest convenient time and will not require the presence of a senior GAO official. Where this procedure cannot be followed, the GAO site staff should ensure that (1) members of those groups receive their individual questionnaires, (2) a plain return envelope addressed to the GAO site office is enclosed, and (3) these individuals are requested to return the questionnaires within 24 hours of receipt. These latter procedures should also be followed for those not members of a group who were absent during the administration.

REPORT OF ADMINISTRATION CONDITIONS

The checklist included in Attachment II is to provide a common basis for documenting the conditions of administration. The checklist should be completed independently, without consultation, by two GAO staff members for each, separate mass administration. A sufficient number of Xerox copies can be made by your staff. The checklist should be self-explanatory and those who use it should be in positions to accurately assess the information called for. The lists should be returned to us when completed.

ATTACHMENT V

RECEIPT AND RETURN OF QUESTIONNAIRES

The questionnaires are scheduled to be shipped from ACE's subcontractor in Minneapolis--INTRAN Corporation--in time to arrive at the Academy by April 25. In the event your staff does not receive these by opening-of-business on April 26, they should immediately contact Mrs. Jeannie Royer of Ace in Washington at 202-833-4752. The questionnaires will be received by your staff sorted alphabetically by calendar year of entry. It was not possible to sort by company or squadron because the necessary identifying information was not located in the same data field each calendar year on the name and address tape furnished to ACE. The name and address labels attached to questionnaires, however, will have the company or squadron information.

Attachments - 2

VERBAL INSTRUCTIONS FOR ON-SITE ADMINISTRATION OF GAO SURVEY OF PRESENT AND FORMER STUDENTS OF THE FEDERAL SERVICE ACADEMIES

INTRODUCTION

The GAO speaker should be introduced by an appropriate academy official, preferably one who has introduced a mass-survey to them before--such as the ACE survey--or someone of high rank from the Commandant's or Superintendent's Office, who should say:

-Good (evening) (morning) gentlemen, I am (rank) (name) (position). I know that all of you have completed questionnaires similar to the one you will complete (tonight) (this morning). It is extremely important that you give this questionnaire your careful consideration.

-Each of you should have received a questionnaire with cover letter. Does everyone have a questionnaire and cover letter? If not please raise your hand and a proctor will bring you one.

-Do not read or work on the questionnaire until you are instructed to do so. You are to use an ordinary #2 pencil (or ordinary lead mechanical pencil) only. Do not use ink or ballpoint pens. For those of you who do not have a pencil, or who, during the session need another pencil, please raise your hand and a proctor will provide you with one. Does anyone need a pencil? If so, please raise your hand.

At this time I would like to introduce Mr. ____________, Manager, Assistant Manager, or Audit Manager, of the ____________Regional Office of the United States General Accounting Office who will explain why the Corps or Wing has been called together and give you specific instructions concerning the questionnaire.

-Hello, I would like to thank the Superintendent and the Commandant for making this time available to us for an important study we are conducting (or . . . .thank you for giving us your limited free-time for an important study . . .).

-We are performing this study because several members of the United States Congress have asked Mr. Staats, who heads our agency, to determine why cadets or midshipmen leave the service academies before graduating.

-We're here today (or tonight or now) to administer a questionnaire, the results of which will help Mr. Staats respond to the Congress. The same questionnaire you have in front of you is being administered to three other groups of people: (1) cadets and midshipmen at the other four service academies (the Military, the Naval, the Air Force, the Coast Guard, the Merchant Marine Academies); (2) those who dropped out or were separated from the five academies since 1970; and, (3) 1973 graduates of the academies.

-By comparing the grouped responses and other characteristics of those who stayed with similar information from those who left, we hope to identify some of the possible causes of attrition.

The Cover Letter

-The letter you received with your questionnaire tells a little about why we are asking you to fill it out, and what will happen to the information that you provide in it. Let's read it through together, starting with the second paragraph.

(READ ALOUD--SLOWLY)

(Pause after the second paragraph and say: I want to assure you, as Mr. Staats does in the third paragraph, that . . .your responses will be held. . .)

(Pause after third paragraph and say: In order to minimize distractions during administration, no one will be allowed to leave his seat until everyone has finished the questionnaire or 55 minutes have elapsed, whichever comes first. If you finish before that time or choose not to answer at all, we ask you to remain seated and quiet so that others may give us their best responses.)

-When we're finished here, my staff will be taking up the completed questionnaires and mailing them directly to our data processing facility. (Read fourth paragraph and then say: Mr. Staats's letter is yours to keep for reference in the event you would like to request a copy of our study.)

Questionnaire Cover

-Now please turn to the questionnaire cover and read the instructions printed there, while I highlight them.

-We have used general terms throughout the questionnaire because the questionnaire covers all five academies. So please note that "first summer" refers to __________________, "unit" refers to the ______ level of organization during first summer and the ______ level during the academic year.

-You should answer all questions except for those in the middle of the questionnaire which are for dropouts and separatees only. These are questions 28 through 36 and a preceding instruction will branch you around them.

-Certain questions ask for your feelings and experiences at various times in your academy career. These are indicated by a preceeding instruction. Remember, though, we want your feelings at a particular time as best you can recall them.

Starting

-The questions should be self-explanatory and for the most part you should have no problems answering them. In any case, we will not be able to answer questions until after you have completed the questionnaire because this might introduce a bias into your responses which would not exist at the other academies and for the other groups who will be responding to the questionnaire.

-We will be happy to respond to any questions you may have after the administration is completed.

-Again, thank you for your cooperation. Please begin.

ATTACHMENT V

CONDITIONS OF ADMINISTRATION CHECKLIST

Academy____________________ Date of Administration___________

Class(es) Participating________ Time of Day__________________

Location of Administration__________________________________

Checklist Completed By______________________________________

INSTRUCTIONS: Anchors are provided at both ends and in the middle of the scales to provide you with frames of reference for completing the checklist. Place an X on the particular line of the 5-point scale which best indicates the status of the condition in question.

I. Physical Conditions

A. Lighting

	Front of room	Middle of room	Back of room
Fairly dark, eye strain needed to read	________	________	________
	________	________	________
Normal, no eye strain needed	________	________	________
	________	________	________
Fairly bright, eye strain need to read	________	________	________

B. Noise level

	First 1/2 hour	Last 1/2 hour
Silence, absolutely no talking by students	________	________
	________	________
Low level noise, some whisper or murmuring	________	________
High level noise, loud talking or running of shoes	________	________

I. Physical Conditions (con't)

C. Temperature

Relatively cold, frequent rubbing of hands needed ______

______

Normal, neither too hot nor too cold ______

______

Relatively hot, perspiration build-up ______

D. General

Unpleasant physical conditions, on the whole ______

______

Neither pleasant nor unpleasant, considering ______

______

Pleasant physical conditions, on the whole ______

II. Attitudes

A. Students	Yes	No
1. Did you hear any griping about the questionnaire when students entered the room?	______	______
1. (a) If so, was the griping widespread?	______	______

A. Students (con't)

	Yes	No
2. Were any questions asked--prior to starting the questionnaire--about its validity?	________	________
2. (a) If so, was the question asked more than once?	________	________
3. Was there any attempt to ask questions after the students were told to START?	________	________
4. Did you hear any griping after the students left the room?	________	________
4. (a) If so, was this widespread?	________	________

5. How many of the students seemed, in general, to be really antagonistic toward answering the questionnaire?

________ All ________ Most ________ About Half ________ Some ________ A few ________ None

6. How many of the students seemed to have chose to not complete the questionnaire?

________ None

________ 1/2 doz. or less

________ Less than a doz. but more than a handful

________ More than a doz. but less than 50

________ 50-100

________ More than 100

III. General

A. Describe briefly any unusual circumstances or special problems encountered in administering the questionnaire.

B. Describe the GAO procedures used for physical control over the questionnaires, including the degree of involvement and physical handling of the questionnaires by Academy personnel (1) prior to administration, (2) during administration, and (3) subsequent to administration.

(COPY)

AMERICAN COUNCIL ON EDUCATION
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OFFICE OF ADMINISTRATIVE AFFAIRS
AND EDUCATIONAL STATISTICS
Division of Educational Statistics

THE STUDY OF FOLLOWUP NONRESPONSE BIAS OF DROPOUTS

JOHN A. CREAGER
DIVISION DIRECTOR

The Study of Followup Nonresponse Bias of Dropouts

John A. Creager
American Council on Education

In studying the attrition of cadets at the military academies, major data collection effort was focused on cadets who entered the academies in 1970, 1971, 1972, and 1973. At the time that followup surveys of these classes were conducted, the number of graduates from these classes was negligible. The current cadets in these classes could, for the most part, be queried on site without resorting to contact by mail. Moreover, the response rates, typically 90% or higher, rendered moot the issue of nonresponse bias. However, the dropouts from these classes could only be followed up by mail contact at the last know address; the response rates, although quite good as compared with those typically experienced in followup surveys by mail, left room for possible bias in the longitudinal data files on dropout respondents. It is the purpose of this report to discuss the rationale and actions taken for the detection of such bias, and its correction.

Since some of the important analysis of the attrition of dropouts necessarily involves data available only on those who respond to the followup questionnaire, any difference between respondents and nonrespondents on variables related to attrition, or in the degree of their relationship to attrition, could result in analytical results different from those which would obtain if all students (or a random sample of them) had responded. For example, if those with higher secondary school grades are more likely to respond to the followup than those with lower grades, the mean grade on the respondent analysis file will be too high, the standard deviation probably too low, and the correlation with attrition may be distorted to the extent that the relationships between grades and attrition were not identical in the high and low grade groups.

Any attempt to detect and control nonresponse bias in a survey requires some information about the nonrespondents, which might distinguish them from respondents. Where no such prior information is available on both groups, intensive effort is made to contact a subsample of nonrespondents by means of additional survey questionnaires, phone calls, or interviews, producing a very limited scope of information on an incompletely contacted subsample. Fortunately, the participation of the military academies in the Cooperative Institutional Research Program of the American Council on Education and supplemental records at the military academies provided extensive information on the cadets followed up, whether or not they responded to the mailed followup questionnaire. It is therefore possible to detect and characterize nonresponse bias by correlational analysis of the variables in such prior information sources against response status. The latter is indicated by a dichotomous dependent variable which identifies for each data record whether or not the subject responded to the followup questionnaire.

Detection of Nonresponse Bias

As an initial exploratory step, it is useful to obtain the response/nonresponse validity coefficients for the variables of prior information and to ascertain their significance, their magnitude, their consistency across followup samples, and their plausibility. If this information indicates an appreciable amount of nonresponse bias, a stepwise multiple linear regression analysis of the prior information is indicated, using the response/nonresponse as the dependent variable. Each of approximately 90 items of prior information serve as independent variables, and are entered into the regression analysis in a stepwise fashion until no additional item can make a significant reduction in the residual sum of squares of the dependent variable. This procedure has the advantage of identifying a set of variables related to response status, which takes into account the intercorrelations among the independent variables, including allowance for the possible suppressor action of one or more variables not directly related to response. With the stepwise regression computer algorithm, there is some risk that the results are affected by capitalizing on the multicollinearity pattern of sampling and measurement errors in the data system. One is therefore more confident of the results when they are based on large samples and when stepwise addition is restrained by a small number of variables permitted to enter, i.e., permitted to enter under a high F (low p).

The American Council on Education has used such regression analysis in several longitudinal followup studies of college students. In typical experiences in which approximately 60,000 students were followed up by mail, a 1/10 or 1/20 random sample of the mailout group was used for the regression analysis. Typically, the sex and race of the students and some measure of secondary school academic achievement (usually high school grades) account for most of the predictability of response to the followup survey; females, Whites, and high achievers are more likely to respond than their counterparts. In a given survey, other variables (some major fields, career choices, parental data, attitudes) may add small amounts of prediction, but not consistently across surveys. It should be noted that the military academies are quite homogeneous in terms of sex and race, precluding the relevance of these typical response-related variables to the present concern.

The extent to which response status has been predictable from initial freshmen survey data has always proved to be very limited. In the Council's experience, the multiple correlations rarely exceed .30 (or about 10% of the variance) even when as many as 10-15 variables were allowed to enter the regression equation. The fact that so many variables are available and are given an opportunity to be considered for entry into regression, and that they represent many different kinds of substantive information, suggests that much of the response/nonresponse variance may well be considered a random phenomenon. Strictly speaking, however, the failure to account more fully for the nonresponse bias does not mean that such bias does not exist, but only that we are unable to establish a firmer basis for its identification and correction on the basis of the available prior information.

Use of Prior Information to Correct for Bias

To the extent that the foregoing analyses have identified variables related to response status, two different techniques are available for developing weights corrective of bias with respect to these variables. Where a small number of variables are related to response status, the simpler technique involves a crosstabulation of the subjects on those antecedent variables and computation of the response rate within each cell. The corrective weight (one for each cell) is the reciprocal of the response rate in that cell. Thus, in a cell with 50% response rate, the corrective weight applied to the data for all respondents in that cell is 2.0. With this technique, the weighted total N equals the total number of students to whom the questionnaires were originally mailed out, and the weighted marginal distributions of the variables used in the crosstabulation will be identical to the unweighted marginal distributions for the mailout sample. It is unlikely that this technique will correct for biases in the marginal distributions of other variables in the data file.

The second technique, though more complicated, utilizes the information obtained in the regression analysis to compute a differential weight for each respondent, which weight is based on all variables that entered the analysis. Application of the regression equation to each respondent yields a predicted probability of response, given that respondent's profile of scores on the independent variables. The corrective weight consists of the reciprocal of that predicted probability, and has the effect to treating the respondent's data as also representing data for nonrespondents having the same profile of scores on the independent variables.

Certain refinements of this procedure are possible. For example, any weight less than 1.0 can be set thereto, and any weight exceeding some maximum (e.g., 20.0) can be reduced to the maximum. Possible interaction effects, e.g., between sex and race, in response status can be taken into account by adding the interaction vectors to the regression or by applying the regression analyses and weighting within subsamples. Since the predicted response probabilities are only predicted rather than actual response probabilities, the predicted values (or the weights) may be "normalized" to reproduce the mailout counts.

The regression basis for correction of bias has been studied empirically by Astin and Molm (1972).[1] They compared weighted marginal distributions with known total distributions using both techniques and compared correction for nonresponse with that for nondeliverability. Their results indicate superiority of the regression weighing correction over the actuarial or cell method and also show that response is more predictable than deliverability. Certain adjustments on the regression weights were explored but found to be less efficacious than using the unadjusted weights.

The regression approach to correcting for nonresponse bias was designed, as noted above, for application to very large scale surveys and presumes that the regression analyses were based on samples large enough to ensure statistical stability of the regression equation. It is also possible with a very extreme split on a dichotomous independent variable for its relationship to response status to depend on very few subjects when the total sample is small. The total procedure from identification of bias through development of weighted data files is rather involved and expensive, though quite feasible with modern computing equipment, and fully justified with large longitudinal data files designed for extensive and varied analytical use.

It should be noted that the procedures discussed above refer only to detection of, and correction for bias due to nonresponse to attempts to make followup contact. Thus, the respondent data file, if so corrected, provides statistics representative of the mailout group. Where one is interested in the data being representative of the initial entering freshmen class, and differential sampling ratios were used in defining the mailout sample, additional weighting factors are required. Where all entrants are included in the followup survey, this is not relevant.

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[1] Astin, Alexander W., and Molm, Linda D., "Correcting for Nonresponse Bias in Followup Surveys", Unpublished manuscript, 1972.

Bias Detection and Feasibility of Weighting Data on Dropouts From Military Academies

Since the prior data was not identically available in the four academy classes, each class was treated as a separate followup sample. The initial effort to detect and characterize nonresponse bias was made by computing zero-order validities of prior variables against response status within each entry class year for each academy subsample and for academy subsamples combined. Within a given entry year, data on 85-90 variables (listed in Attachments, I-IV) were used, mostly from the Student Information Form administered to cadets as entering freshmen, as supplemented with test scores and ratings supplied by academy records. In the case of the combined academy samples, the dichotomous variables indicating the academy attended were also used. Validities for the latter indicate differences in academy sample response rates, regardless of cause, and the size of a particular academy subsample relative to the size of the pooled sample. The sample sizes on which the response validities are based are summarized in Table I. These are approximately equal to, or slightly less than the mailout counts, since a few subjects were lost in data processing matching operations. Although data were available on some additional variables, the variables for study were chosen to maximize the chance of picking up variance that might be related to response status, with priority given to those variable types which previous experience showed relationship with longitudinal followup response. Unforunately, the homogeneity of sex and race in these military academy classes precluded their inclusion as potential predictors. Even some of the variables selected for inclusion had no variance within at least one academy.

To ascertain whether any of the prior information was significantly related to response status, we examined the number of significant response validities within each sample and subsample at the 5% and 1% significance levels. Since the number of validities examined per sample was approximately 100, the numbers were approximately percentages. These figures are presented in Table II. Theoretically, by chance one expects 5% of the validities to be significant at the 5% level and 1% at the 1% level. The computer algorithm computes significance levels in terms of Student's _t_.

The figures in Table II are somewhat larger than expected from the sampling distribution of correlations. In interpreting this finding, it should be noted that (1) not all variables are experimentally independent and (2) many of the variables are either dichotomous or markedly skewed, whereas the sampling theory is based on continuous, normal distributions. Moreover, it should be noted that the information, while suggesting that at least some validities are really related to response status, does not tell us which variables are to be taken seriously as related to response bias and which were significant "by chance" (since we had so many validities to look at). Except within the smallest academy subsamples, the magnitudes of the significant validites rarely accounted for more than 1% or 2% of the response variance.

In view of these equivocal results, special attention was given to magnitude, patterns of consistency, and plausible interpretatibility of the significant validities. These are summarized in Table III. In the 1970 entry classes, response was primarily and consistently related to the marital status of the parent. Approximately 6% of the dropouts reported parents alive but divorced and in all academy subsamples, were significantly less likely to respond; if parents were alive but married (90% of the total sample), the dropout was more likely to respond. No significant validities were obtained for those whose parents were deceased. These variables are dichotomous, with extreme splits and are experimentally dependent. Those dropouts who indicated as freshmen that they thought the government showed too much concern for the rights of criminals were more likely to respond in three of the four academy subsamples. High School grades, a common predictor of response status, was just barely significant in two of the academy subsamples and in the combined sample. Elsewhere, validities were either unique to a particular academy subsample, usually with very low magnitude, or had opposite signs across academy subsamples.

In the 1971 entry classes, more significant validities of the same low order of magnitude were found. Greatest consistency was found for the achievement variables (Mathematics, English, and High School grades), which are factorially interdependent. This result has also been found in other ACE studies of response status, but the relationship is much weaker in the academy samples than normally observed. The highest replicable validities were found (in the Navy and Army samples only) for the Recruited Athlete, who if also a dropout, was less likely to respond. In two of the academies, the older dropouts were also less likely to respond. Again, other validities, even when significant, were either unique to academy subsamples or had sign reversals across subsamples.

In the 1972 entry classes, High School Grades and the Composite Ratings were consistently related to response status with 1-4% of the variance accounted for. In the 1973 classes, the only thing approaching consistency was a tendency for those dropouts choosing psychology as a major field (0.4%), when completing the freshmen survey, not to respond.

Summarizing the information obtained from examination of the zero-order validities of prior variables against response status, we can only detect a very small amount of nonresponse bias with any confidence and with considerable inconsistency across entry year samples and academy subsamples within year. This appears to render moot any attempt to perform a common weighting correction across years and academies for respondent data on dropouts. Had some of the validities within academy subsamples been much larger and more consistent with past experience of variable types related to response bias, they could be taken more seriously as indicators of response bias and indeed, as indicating differential correction by subsample. The nature and levels of these validities are counterindicative of a basis for elaborate corrective weighting procedures in the sample sizes involved and are not recommended.

As a further check on the feasibility of weighting corrections for nonresponse bias, multiple regression of response status on prior variables were performed on the combined academy samples for each entry year. In each case the Academy Attended vectors were allowed to enter, but not forced to do so, and in no case did they enter, despite some differences among academies in response rates. These regressions were performed with rather liberal parameters, appropriate for exploration of feasibility of further action: the probability of the F ratio was set at .05 and the Tolerance at .01. Based on prior experience, we constrained the number of variables permitted to enter at 15.

Table IV summarizes the number of steps required to build up a regression accounting for 5% of the response variance, and the percentage of variance accounted for after 5, 10, and all 15 steps. We further examined the variables which entered during the first five steps. No suppressor variables were found except in the 1973 sample where the 10th entry has a regression weight with sign opposite to that of its validity. In all cases the first five variables consisted either of those most significant validities previously discussed or with a validity unique to a particular academy. This latter situation occured most frequently where the particular academy subsample was smallest, e.g., USCGA or USMMA.

Although the examination of the multiple regressions in the combined samples for each year provides further information about response bias, taking into account interrelations among the prior variables, the results provide no further encouragement to weight the dropout respondent data files for bias due to differential response to the followup survey. In view of some indication of heterogeneity of regression across the academy subsamples, it might in fact be dangerous to do so on the basis of the combined regression, whereas differential correction within year-by-academy subsamples would vastly elaborate the effort with doubtful weighting based on less stable regression systems.

It is therefore our recommendation that no response weights designed to correct for possible response bias to the followup survey be computed and appended to the respondent data files. For most analytical purposes, it would probably not be necessary to append any weights to the data files, unless comparative headcount information is to be derived, rather than summary statistical information. While bias cannot definitely be ruled out, the evidence examined does not support a conclusion of sufficient bias to justify its correction.

TABLE I

Sample Sizes for Response Validities

Year	Combined	USAFA	USNA	USMA	USCGA	USMMA
1970	1398	559	343	380	116	-
1971	1403	574	395	298	136	-
1972	1093	387	243	254	109	-
1973	747	215	152	248	58	74

TABLE II

Number of Significant Response Validities

	Year							
	1970		1971		1972		1973	
Academy/level	5%	1%	5%	1%	5%	1%	5%	1%
USAFA	4	1	11	2	7	2	7	2
USNA	3	0	9	1	4	3	5	2
USMA	7	2	9	4	7	5	8	0
USCGA	4	0	8	1	9	4	6	4
USMMA	-	-	-	-	-	-	6	0
Combined	9	3	10	9	9	9	17	4

TABLE III

Consistent and Interpretable Response Validities

(Decimal points have been omitted)

Variable	Combined Academies	USAFA	USNA	USMA	USCGA
		1970			
Parents Divorced (6%)	-12*	-11*	-13*	-09	-21
Parents Alive & Married	09*	09	-	09	17
Concern for Criminal Rights	08*	-	13*	09	15
		1971			
Age	-08*	-	-11	-	-18
High School Grades	08*	11	07	-	-
SAT-Math	07*	08	11	12**	-
CEEB-English	06	07	10	-	-
Recruited Athlete	-09*	-	-10	15*	-
		1972			
High School Grades	13*	11	10	16*	20
Composite Rating	06	-	20*	18*	20
		1973			
None					

---

*P<.01; otherwise .05>P>.01

**ACT-Math

TABLE IV

Summary Results of Stepwise Regression Analyses[1]

	1970	1971	1972	1973
Number of Steps for R^2 to exceed .05	10	12	7	5
R^2 @ 5 entries	.036	.030	.042	.058
R^2 @ 10 entries	.050	.046	.064	.084
R^2 @ 15 entries	.060	.058	.078	.100

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[1] Based on combined academy samples within each year.

ATTACHMENT I

87 Independent Variables Used in Nonresponse Study

Entry Year 1970

STUDENT INFORMATION FOR VARIABLES (78)

Age
High School Grades
Financial Concern
Father's Education
Mother's Education
Parent's Income
Where Lived (urban-rural)
Political Self-Characterization
Distance (miles) of College from Home
Socio-economic Class of Neighborhood
Number of Class Friends in High School
Percent of High School Class Attending College
9 Academic Attitudes
15 Social Attitudes
Academic Level of Aspiration
9 Career Choice Dichotomies
16 First Choice Major Field Dichotomies
7 Religious Preference Dichotomies
5 Secondary School Dichotomies
4 Parental Status Dichotomies

GAO SUPPLEMENTAL VARIABLES (5)

SAT-Verbal
CEEB-Math
Composite Rating
High School Athletic Activities Score
Physical Aptitude Examination

FOUR ACADEMY DICHOTOMIES

ATTACHMENT II

88 Independent Variables Used in Nonresponse Study

Entry Year 1971

STUDENT INFORMATION FORM VARIABLES (75)

Age
High School Grades
12 High School Accomplishments
Distance (miles) of College from Home
Father's Education
Mother's Education
Financial Concern
10 Reasons for Attending College
Political Self-Characterization
10 Academic Attitudes
7 Reasons for Choosing Particular College
Academic Level of Aspiration
9 Career Choice Dichotomies
16 First Choice Major Field Dichotomies
5 Religious Preference Dichotomies

GAO SUPPLEMENTAL VARIABLES (9)

SAT-Verbal
SAT-Math
CEEB-English
CEEB-Math
Composite Rating
High School Nonathletic Activities Score
Recruited Athlete Designation
ACT-Math
Physical Aptitude Examination

FOUR ACADEMY DICHOTOMIES

ATTACHMENT III

86 Independent Variables Used in Nonresponse Study

Entry Year 1972

STUDENT INFORMATION FORM VARIABLES (71)

Age
Academic Level of Aspiration
Distance (miles) of College from Home
Applications for Admission to other Colleges
Acceptances Received from other Colleges
High School Grades
Size of High School Graduating Class
Percent of High School Class Attending College
Where Lived (urban-rural)
Financial Concern
Parent's Income
Father's Education
Mother's Education
Parental Marital Status
Father's Employment Status
Mother's Employment Status
Political Self-Characterization
Been Employed
11 Social Attitudes
12 Reasons for Choosing Particular College
8 Career Choice Dichotomies
17 First Choice Major Field Dichotomies
5 Religious Preference Dichotomies

GAO SUPPLEMENTAL VARIABLES (11)

SAT-Verbal
SAT-Math
CEEB-English
CEEB-Math
Composite Rating
High School Athletic Activities Score
High School Nonathletic Activities Score
Recruited Athlete Designation
ACT-Verbal
ACT-Math
Physical Aptitude Examination

FOUR ACADEMY DICHOTOMIES

Entry Year 1973

STUDENT INFORMATION FORM VARIABLES (74)

- Age
- Applications for Admission to other Colleges
- Acceptances Received from other Colleges
- Academic Level of Aspiration
- High School Grades
- 9 Reasons for Choosing Particular College
- Number of Children Expected
- Father's Education
- Mother's Education
- Parent's Income
- Number of Siblings under 21
- Number of Siblings 21 or over
- Number of Siblings in College
- Father's Employment Status
- Mother's Employment Status
- Financial Concern
- Political Self-Characterization
- 21 Social and Academic Attitudes
- 6 Career Choice Dichotomies
- 18 Probable Major Field Dichotomies
- 4 Religious Preference Dichotomies

GAO SUPPLEMENTAL VARIABLES (9)

- SAT-Verbal
- SAT-Math
- CEEB-English
- CEEB-Math
- Composite Rating
- High School Athletic Activities Score
- High School Nonathletic Activities Score
- Recruited Athlete Designation
- Physical Aptitude Examination

FIVE ACADEMY DICHOTOMIES

ACE FRESHMAN SURVEY STABILITY ESTIMATES

The stability of responses to selected items in the ACE freshman survey, after a two-week interval, were estimated by R.F. Boruch and J.A. Creager (see Measurement error in social and educational survey research. Washington, D.C.: American Council on Education, 1972) using a sample of 202 freshmen at two universities and one college in the metropolitan Washington area. Selected results from their study are included in the following tables for purposes of comparison with the GAO memory bias tests.

Table 1

Test-Retest Response Probabilities and Phi Coefficients for Checklist of High School Achievements

High School Achievement	P_1	P_2	Ø
Elected president of student organization(s)	.26	.25	.90
Received high rating in state/regional music contest	.10	.08	.89
Participated in state/regional speech/ debate contest	.07	.07	.92
Had major part in play	.21	.20	.96
Won varsity letter (sports)	.28	.30	.96
Won award in art competition	.07	.06	.88
Edited school paper, yearbook, literary magazine	.16	.17	.91
Had original writing published	.23	.26	.88
Was member of scholastic honor society	.25	.25	.96
Received National Merit recognition	.13	.13	1.00

Table 2

Test-Retest Statistics and Reliabilities for Reported Attitudes Toward Federal Involvement in Problem Areas[a]

Problem Area	$\overline{X}_1$	S.D.$_1$	$\overline{X}_2$	S.D.$_2$	r
Control of cigarette advertising	3.48	1.13	3.46	1.10	.73
Elimination of violence from TV	2.78	1.17	2.94	1.15	.64
Control of pollution	4.71	.59	4.64	.64	.43
Control of birth rate through tax incentives	3.22	1.37	3.27	1.18	.63
Consumer protection	4.14	.73	4.09	.67	.41
Compensatory education for the disadvantaged	3.98	.79	3.70	.82	.68
Special benefits for veterans	3.28	.74	3.19	.72	.58
Control of firearms	3.85	1.05	3.75	1.04	.79
Elimination of poverty	4.39	.85	4.27	.82	.69
Crime prevention	4.49	.73	4.36	.69	.44
School desegregation	3.83	1.24	3.75	1.13	.83
Financial aid for disadvantaged	3.67	.88	3.50	.83	.57
Control of student activists	2.55	1.22	2.53	1.12	.69

---

[a] Alternatives and scoring key: Initiate new crash programs = 5; Increase involvement from current level = 4; Maintain current level of involvement = 3; Decrease involvement from current levels = 2; Eliminate any existing programs or remain uninvolved = 1.

ATTACHMENT VII

Table 3

Test-Retest Statistics and Reliabilities for Reported Attitudes about Campus and Social Issues[a]

Item	$\bar{X}_1$	S.D.$_1$	$\bar{X}_2$	S.D.$_2$	r
Students should help design curriculum	3.36	.76	3.28	.71	.64
Scientists should publish all findings	2.75	.93	2.72	.88	.63
Individual cannot change society	2.20	.94	2.25	.84	.62
Colleges have right to control behavior of students off campus	1.22	.59	1.27	.60	.48
Chief benefit of college is monetary	2.17	.96	2.31	.92	.72
Faculty promotions should be based on student evaluations	2.87	.86	2.86	.80	.57
My beliefs are similar to those of other students	2.58	.69	2.60	.68	.66
College officials should clear student publications	1.93	.90	1.81	.78	.59
Marijuana should be legalized	2.76	1.10	2.75	1.08	.88
College has right to ban extremist speakers	1.65	.87	1.73	.88	.61
Army should be voluntary	2.92	.98	2.88	.94	.69
Disadvantaged should be given preferential treatment in admissions	2.20	.88	2.25	.90	.74
College officials too lax with student protests	2.06	.85	2.12	.86	.66

[a] Alternative and scoring key: Agree strongly = 4, agree somewhat = 3, disagree somewhat = 2, disagree strongly = 1.

Table 4

Stability of Reported Attitudes on Items Pertaining to Student Freedom and Administrative Control

Institution	Item	$\bar{X}_1$	S.D.$_1$	$\bar{X}_2$	S.D.$_2$	$\underline{r}$	$\Delta \bar{X}_{2-1}$	ΔS.D.$_{2-1}$
Public university (N = 97)	Liberalism[a]	3.34	.87	3.43	.86	.93	.09	-.01
	Control activists[b]	2.56	1.12	2.57	1.07	.57	.01	-.05
	Regulate off-campus behavior[c]	1.25	.69	1.27	.62	.45	.02	-.24
	Regulate publications[c]	1.96	.95	1.85	.76	.62	-.09	-.21
	Ban speakers[c]	1.66	.89	1.72	.87	.49	.06	-.01
	Administrative laxity[c]	1.99	.77	2.16	.84	.70	.17	-.07
Private university (N = 62)	Liberalism[a]	3.92	.67	3.97	.64	.89	.05	-.03
	Control activists[b]	2.15	1.17	2.13	1.00	.85	-.02	-.17
	Regulate off-campus behavior[c]	1.13	.42	1.22	.52	.61	.09	.10
	Regulate publications[c]	1.62	.75	1.57	.67	.45	-.05	-.08
	Ban speakers[c]	1.44	.74	1.44	.72	.77	.00	-.02
	Administrative laxity[c]	1.94	.79	1.89	.79	.60	-.05	.00
Community college (N = 43)	Liberalism[a]	3.19	1.11	3.15	1.02	.87	-.04	-.09
	Control activists[b]	3.12	1.26	3.02	1.19	.62	-.10	-.07
	Regulate off-campus behavior[c]	1.30	.56	1.35	.65	.49	.05	.09
	Regulate publications[c]	2.28	.83	2.07	.91	.58	-.21	.08

Ban speakers[c]	1.93	.91	2.14	.96	.63	.21	.05
Administrative laxity[c]	2.40	.98	2.37	.95	.63	-.03	-.03

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[a] Self-rating. Alternatives and scoring key: Highest 10 percent = 5; above average = 4; average = 3; below average = 2; lowest 10 percent = 1.

[b] Federal involvement. See Table 14, footnote a, for alternatives and scoring key.

[c] Attitude item. Alternatives and scoring key: Agree strongly = 4; agree somewhat = 3; disagree somewhat = 2; disagree strongly = 1.

Table 5

Test-Retest Statistics and Reliabilities for Reported Chances of Future Events

Future Events[a]	X_1	S.D.$_1$	X_2	S.D.$_2$	r
Getting married while in college	2.26	.99	2.27	.97	.88
Marrying within a year after college	2.84	1.00	2.84	.98	.82
Obtaining average grade of A- or higher	2.12	.85	2.14	.87	.77
Changing major field	2.84	.93	2.77	.95	.81
Changing career choice	2.82	.99	2.74	.97	.80
Failing one or more courses	2.31	.93	2.26	.89	.76
Graduating with honors	2.29	.88	2.23	.85	.73
Being elected to a student office	1.91	.81	1.98	.79	.73
Joining a social fraternity or sorority	2.39	1.17	2.34	1.11	.86
Authoring a published article	2.10	.94	2.04	.90	.76
Being drafted while in college	1.41	.75	1.48	.75	.80
Being elected to an honor society	2.17	.92	2.16	.89	.77
Protesting over U.S. military policy	2.70	1.15	2.63	1.10	.88
Protesting over college administrative policy	2.59	1.01	2.54	.96	.84
Protesting over racial/ ethnic policy	2.72	1.07	2.61	1.04	.83

Dropping out temporarily	2.05	.86	1.95	.82	.69
Enlisting in armed services before graduation	1.18	.51	1.27	.61	.62
Being more successful than average	3.04	.61	3.07	.60	.59
Dropping out permanently	1.40	.69	1.45	.69	.58
Transfering to another college	2.67	1.00	2.62	.99	.82

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[a] Alternate responses and scoring key: Very good chance = 4; some chance = 3; very little chance = 2; no chance = 1.

Table 13

Test-Retest Statistics and Reliabilities for Reported Objectives

Objective[a]	$\bar{X}_1$	S.D.$_1$	$\bar{X}_2$	S.D.$_2$	r
Being accomplished in a performing art	1.63	.84	1.78	.90	.78
Being an authority in field	2.82	.81	2.85	.87	.73
Obtaining recognition from peers	2.41	.90	2.47	.88	.68
Influencing the political structure	2.01	.87	2.03	.86	.72
Influencing social values	2.41	.92	2.43	.87	.71
Raising a family	3.08	.98	3.16	.96	.87
Having an active social life	2.74	.89	2.75	.88	.74
Having friends different from self	2.80	.89	2.85	.85	.70
Being an expert in finance and commerce	1.56	.77	1.63	.83	.74
Having administrative responsibility for work of others	1.90	.86	1.98	.87	.66
Being very well-off financially	2.45	.85	2.47	.80	.81
Helping others in difficulty	2.92	.79	2.84	.81	.65
Becoming a community leader	1.83	.85	1.91	.81	.74
Contributing to a scientific theory	1.37	.67	1.38	.73	.79
Writing original works	1.76	.92	1.80	.98	.80
Not being obligated to people	2.08	1.03	2.12	1.00	.71

Creating works of art	1.86	.99	1.89	.94	.81
Keeping up with political affairs	2.74	.83	2.65	.88	.81
Succeeding in own business	2.05	1.04	2.16	1.03	.67
Developing a philosophy of life	3.35	.83	3.35	.79	.69

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[a] Alternatives and scoring key: Essential = 4; very important = 3; somewhat important = 2; not important = 1.

POSITION RESPONSE BIAS TEST ITEMS

GAO QUESTIONNAIRE

22. How influential was the advice of each of the people you consulted? (Mark one for each group of people)

	Very influential	Somewhat influential	Not influential
Family	○	●	○
Girl friends	○	●	○
Other friends away from the Academy	○	●	○
Former Academy students who resigned	○	●	○
Academy graduates	○	●	○
Roommates	○	●	○
Other classmates	○	●	○
Commissioned Academy officers (other than academic faculty)	○	●	○
Civilian Academy faculty members	○	●	○
Military faculty members	○	●	○
Cadet/Midshipmen officers	○	●	○
Upperclassmen	○	●	○

23. **What effect have the following had on your desire to stay at the Academy (or did they have at the time you were there)?** (Mark one for each item)

	Greatly increased	Somewhat increased	No effect	Somewhat decreased	Greatly decreased	No basis to judge
Antimilitaristic attitudes of some people today	●	○	○	○	○	○
Attitudes of the local community toward Academy students	●	○	○	○	○	○
End of U.S. involvement in Southeast Asia	●	○	○	○	○	○
Adverse publicity about the military	●	○	○	○	○	○
Changing military or maritime career opportunities	●	○	○	○	○	○
National economic conditions	●	○	○	○	○	○
Stigma associated with resigning from the Academy	●	○	○	○	○	○
Graduate school opportunities	●	○	○	○	○	○
Changes in service personnel policies	●	○	○	○	○	○
Obligation to perform enlisted service after resigning from the Academy	●	○	○	○	○	○
Increasing familiarity with the military or maritime service	●	○	○	○	○	○

21. **If you have ever consulted any of the people listed below about voluntarily resigning from the Academy, indicate the type of encouragement provided. IF YOU DID NOT CONSULT ANYONE, MARK HERE ► ○ AND GO TO QUESTION 23.**

(Mark only those you consulted)	Strongly encouraged leaving	Mildly encouraged leaving	Did not encourage either way	Mildly encouraged staying	Strongly encouraged staying
Family	○	○	○	●	○
Girl friends	○	○	○	●	○
Other friends away from the Academy	○	○	○	●	○
Former Academy students who resigned	○	○	○	●	○
Academy graduates	○	○	○	●	○
Roommates	○	○	○	●	○
Other classmates	○	○	○	●	○
Commissioned Academy officers (other than academic faculty)	○	○	○	●	○
Civilian Academy faculty members	○	○	○	●	○
Military faculty members	○	○	○	●	○
Cadet/Midshipmen officers	○	○	○	●	○
Upperclassmen	○	○	○	●	○

5. **The following statements deal with accomplishments or activities that might possibly apply to your high school years. Think back to those years and mark "yes" to each one that applies.** (Mark all that apply)

	Yes
Was elected officer of one or more student organizations (recognized by the school)	●
Received a high rating (Good, Excellent) in a state or regional music contest	●
Participated in a state or regional speech or debate contest	●
Had a major part in a play or was a stage manager or director	●
Won a varsity letter (sports)	●
Won a prize or award in an art competition	●
Edited or worked on the school paper, yearbook, or literary magazine	●
Had poems, stories, essays, or articles published	●
Participated in a National Science Foundation summer program	●
Placed (first, second, or third) in a state or regional science contest	●
Was a member of a scholastic honor society	●
Won a Certificate of Merit or Letter of Commendation in the National Merit Program	●
Was valedictorian or salutatorian of my graduating class	●
Was named to an All-City, All-County, All-State, or All-American high school athletic team	●
Was a member of a high school ROTC unit	●
Held a steady job while attending school	●
Participated in a scouting organization for at least three years (Boy Scouts, Explorer Scouts, Sea Cadets)	●

8. **Below are some reasons that might have influenced your decision to attend the Academy. How important was each reason in your decision to enter?**

(Mark one for each item)

	Very important	Somewhat important	Not important or not applicable
Parents wanted me to attend	○	○	●
Not accepted at my first choice (another academy or a civilian college)	○	○	●
Honor and prestige of an Academy appointment	○	○	●
Academic reputation of the Academy	○	○	●
Graduation offered social prestige	○	○	●
Opportunity to play intercollegiate athletics	○	○	●
Wanted to serve my military obligation as an officer	○	○	●
Desire to fly	○	○	●
Desire to go to sea	○	○	●
Pay while attending Academy	○	○	●
Opportunity for travel and adventure after graduation	○	○	●
Emphasis on leadership training and physical development at Academy	○	○	●
Wanted to serve my country	○	○	●
Graduation offered the opportunity for long run financial security	○	○	●
Felt it would help me attain high rank in the service	○	○	●
Tuition free education	○	○	●

9. **How accurate were your expectations at the time of entry about the following aspects of Academy life?**

(Mark one for each item)

	Very accurate	Generally accurate	Neither accurate nor inaccurate	Generally inaccurate	Very inaccurate	No basis to judge
First summer	○	●	○	○	○	○
Fourth Class System	○	●	○	○	○	○
Academic program	○	●	○	○	○	○
Regimentation	○	●	○	○	○	○
Physical education training	○	●	○	○	○	○
Opportunity for self improvement	○	●	○	○	○	○
Demands on my time	○	●	○	○	○	○
Student privileges and leave	○	●	○	○	○	○
The Honor Concept or Honor Code	○	●	○	○	○	○

7. **Rate yourself on each of the following traits as you really thought you were at the time you entered the Academy when compared with the average person of your age at that time.** (Mark one for each item)

	Highest 10%	Above average	Average	Below average	Lowest 10%
Academic ability	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Athletic ability	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Artistic ability	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Cheerfulness	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Drive to achieve	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Leadership ability	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Mathematical ability	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Mechanical ability	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Originality	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Political conservatism	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Political liberalism	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Popularity	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Popularity with the opposite sex	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Public speaking ability	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Self confidence (intellectual)	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Self confidence (social)	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Sensitivity to criticism	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Stubbornness	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Understanding of others	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Writing ability	●	Ⓑ	Ⓒ	Ⓓ	Ⓔ

20. **How similar in attitudes and beliefs are you (or were you while at the Academy) to the following?**

	Very similar	Somewhat similar	No opinion	Somewhat dissimilar	Very dissimilar
Students at the Academy	○	○	○	●	○
Students who recently graduated from the Academy	○	○	○	●	○
Students you knew who resigned	○	○	○	●	○
Other students you knew who were separated	○	○	○	●	○
Officers at the Academy	○	○	○	●	○
Other officers	○	○	○	●	○
Other military or maritime personnel	○	○	○	●	○
Students attending civilian colleges	○	○	○	●	○
Students at other academies	○	○	○	●	○
Peers in home town	○	○	○	●	○

40. How satisfied are you (or were you at the time you were at the Academy) with the following aspects of the Academy? (Mark one for each item)

	Very satisfied	[illegible]	[illegible]	[illegible]	Very dissatisfied
Selection of student chain-of-command	○	●	○	○	○
Student influence in policy decisions	○	●	○	○	○
Opportunity to participate in intramural sport of choice	○	●	○	○	○
Opportunity to exercise initiative	○	●	○	○	○
Opportunity to sleep	○	●	○	○	○
Availability of advice, guidance and feedback	○	●	○	○	○
Opportunity to major in, concentrate in, or take subjects of interest	○	●	○	○	○
Control over your pay	○	●	○	○	○
Intellectual and educational challenge in the academic curriculum	○	●	○	○	○
Emphasis on technical matters in the curriculum	○	●	○	○	○
Individual instruction available	○	●	○	○	○
Leave and liberty	○	●	○	○	○
Availability of free time at the Academy	○	●	○	○	○
Opportunity for female companionship	○	●	○	○	○
Student-center type facilities (e.g., college student union building)	○	●	○	○	○
Official explanations of procedures and practices	○	●	○	○	○
Leadership qualities of officers and staff	○	●	○	○	○

41. About how many of your courses exhibited the following characteristics? (Mark one for each item)

	All or almost all	Many	About half	Few	One or none
Homework load was reasonable for course	○	○	○	●	○
The instructor called students by their first names	○	○	○	●	○
The instructor encouraged a lot of class discussion	○	○	○	●	○
The instructor motivated me toward a career in the service or maritime industry	○	○	○	●	○
Frequency of quizzes and tests were reasonable for course	○	○	○	●	○
There was fairness in grading	○	○	○	●	○
The instructor knew the subject matter well	○	○	○	●	○
The instructor stimulated my interest in the subject	○	○	○	●	○
Individual instruction was given to those in need	○	○	○	●	○

10. Which of the following statements are (or were) applicable to you as a student at the Academy? (Mark all that apply)

	Yes
I felt I could have transferred to almost any school of my choice	●
My girl friend wanted me to get married before I graduated	●
Friends of mine were involved in protests against the Vietnam war	●
My girl friend became serious about somebody else	●
I had an opportunity to assume the family business	●
My family suffered an acute hardship (death, illness, divorce, financial loss, etc.)	●
My term of enlisted service expired	●
None of the above	●

42. Below is a list of things which students sometimes do. Indicate how often you did the following things during the current academic year (or your last academic year) at the Academy. (Mark one for each item)

	Frequently	Occasionally	Once or twice	Not at all
Visited nearby community or large city	○	●	○	○
Came in late to class	○	●	○	○
Arranged a date for another student	○	●	○	○
Overslept and missed a scheduled activity	○	●	○	○
Failed to complete a homework assignment on time	○	●	○	○
Openly disagreed with an instructor in class	○	●	○	○
Attended religious services	○	●	○	○
Played athletics in free time	○	●	○	○
Asked an instructor for advice after class	○	●	○	○
Walked tours, served confinements, restricted or extra duty	○	●	○	○
Received demerits	○	●	○	○
Did extra (unassigned) reading for a course	○	●	○	○
Tutored another student	○	●	○	○
Missed scheduled activity because of illness	○	●	○	○
Smoked cigarettes	○	●	○	○
Discussed politics	○	●	○	○
Drank alcoholic beverages	○	●	○	○
Discussed sports	○	●	○	○
Participated in a prank	○	●	○	○
Skipped a class	○	●	○	○
Dated	○	●	○	○
Was a guest at faculty or officer's home	○	●	○	○
Snacked between meals	○	●	○	○
Studied after taps	○	●	○	○
Was tutored by another student	○	●	○	○

13. **Indicate whether you felt bothered by the following things during (A) your first summer, (B) your fourth class academic year, and (C) your third class year.**

(Mark one for each item for each year that applies to you)

(N) – Almost never
(R) – Rarely
(S) – Sometimes
(O) – Rather often
(A) – Nearly all the time

Ⓝ Ⓡ Ⓢ Ⓞ Ⓐ

	(A) 1st Summer	(B) 4th Class Year	(C) 3rd Class Year
Not knowing what Academy officials and upperclassmen expected of me	● Ⓡ Ⓢ Ⓞ Ⓐ	Ⓝ ● Ⓢ Ⓞ Ⓐ	Ⓝ Ⓡ Ⓢ ● Ⓐ
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me	● Ⓡ Ⓢ Ⓞ Ⓐ	Ⓝ ● Ⓢ Ⓞ Ⓐ	Ⓝ Ⓡ Ⓢ ● Ⓐ
Not knowing what my superior commissioned officers and upperclassmen thought of me or how they evaluated my performance	● Ⓡ Ⓢ Ⓞ Ⓐ	Ⓝ ● Ⓢ Ⓞ Ⓐ	Ⓝ Ⓡ Ⓢ ● Ⓐ
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen	● Ⓡ Ⓢ Ⓞ Ⓐ	Ⓝ ● Ⓢ Ⓞ Ⓐ	Ⓝ Ⓡ Ⓢ ● Ⓐ
Thinking that the amount of work I had to do might interfere with how well it got done	● Ⓡ Ⓢ Ⓞ Ⓐ	Ⓝ ● Ⓢ Ⓞ Ⓐ	Ⓝ Ⓡ Ⓢ ● Ⓐ
Feeling that the things I had to do were against my judgment	● Ⓡ Ⓢ Ⓞ Ⓐ	Ⓝ ● Ⓢ Ⓞ Ⓐ	Ⓝ Ⓡ Ⓢ ● Ⓐ
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen	● Ⓡ Ⓢ Ⓞ Ⓐ	Ⓝ ● Ⓢ Ⓞ Ⓐ	Ⓝ Ⓡ Ⓢ ● Ⓐ
Being unclear just what the scope and responsibilities of my role were	● Ⓡ Ⓢ Ⓞ Ⓐ	Ⓝ ● Ⓢ Ⓞ Ⓐ	Ⓝ Ⓡ Ⓢ ● Ⓐ

14. **Indicate the extent to which each statement is (or was) true of members of your unit. We realize that people are different. Nevertheless, try to give us your best overall opinion.**

NOTE UNIT MEANS ELEMENT, SECTION OR COMPANY DURING 1ST SUMMER – – COMPANY OR SQUADRON DURING ACADEMIC CLASS YEARS

(Mark one for each item for each year that applies to you)

(1) – Very great extent
(2) – Great extent
(3) – Some extent
(4) – Little extent
(5) – Very little extent

① ② ③ ④ ⑤

CLASSMATES IN YOUR UNIT	(A) 1st Summer	(B) 4th Class Year	(C) 3rd Class Year
Encouraged each other to give best effort	● ② ③ ④ ⑤	① ② ③ ④ ●	① ● ③ ④ ⑤
Maintained high standards of performance	● ② ③ ④ ⑤	① ② ③ ④ ●	① ● ③ ④ ⑤
Listened to what I said	● ② ③ ④ ⑤	① ② ③ ④ ●	① ● ③ ④ ⑤
Were easy to approach	● ② ③ ④ ⑤	① ② ③ ④ ●	① ● ③ ④ ⑤
Merited my confidence and trust	● ② ③ ④ ⑤	① ② ③ ④ ●	① ● ③ ④ ⑤

UPPERCLASSMEN IN YOUR UNIT			
Gave special attention to those who needed help	① ② ③ ● ⑤	① ② ● ④ ⑤	① ② ③ ● ⑤
Maintained high standards of performance	① ② ③ ● ⑤	① ② ● ④ ⑤	① ② ③ ● ⑤
Listened to my problems	① ② ③ ● ⑤	① ② ● ④ ⑤	① ② ③ ● ⑤
Were easy to approach	① ② ③ ● ⑤	① ② ● ④ ⑤	① ② ③ ● ⑤
Had confidence and trust in me	① ② ③ ● ⑤	① ② ● ④ ⑤	① ② ③ ● ⑤

15. **How much emphasis is (or was) placed upon the following?** (Mark one for each item for each year that applies to you)

(H) – High emphasis
(M) – Moderate emphasis
(L) – Low or no emphasis

Ⓗ Ⓜ Ⓛ

	1st Summer	4th Class Year
Physical conditioning	● Ⓜ Ⓛ	Ⓗ ● Ⓛ
Drills and ceremonies	● Ⓜ Ⓛ	Ⓗ ● Ⓛ
Athletics	● Ⓜ Ⓛ	Ⓗ ● Ⓛ
Learning professional knowledge for recitation to upper classmen (ranges of weapons, military ranks and insignia, etc.)	● Ⓜ Ⓛ	Ⓗ ● Ⓛ
Learning other information for recitation to upper classmen (sports scores, current movies, etc.)	● Ⓜ Ⓛ	Ⓗ ● Ⓛ
Inspections	● Ⓜ Ⓛ	Ⓗ ● Ⓛ
Opportunity to exercise individual initiative	● Ⓜ Ⓛ	Ⓗ ● Ⓛ
Comaraderie and esprit de corps	● Ⓜ Ⓛ	Ⓗ ● Ⓛ

16. **How much emphasis do you feel should be placed on each of the following? Bear in mind the objectives of the Academy as you understand them.** (Mark one for each item for each year that applies to you)

(H) – High emphasis
(M) – Moderate emphasis
(L) – Low or no emphasis

Ⓗ Ⓜ Ⓛ

	1st Summer	4th Class Year
Physical conditioning	Ⓗ Ⓜ ●	● Ⓜ Ⓛ
Drills and ceremonies	Ⓗ Ⓜ ●	● Ⓜ Ⓛ
Athletics	Ⓗ Ⓜ ●	● Ⓜ Ⓛ
Learning professional knowledge for recitation to upper classmen (ranges of weapons, military ranks and insignia, etc.)	Ⓗ Ⓜ ●	● Ⓜ Ⓛ
Learning other information for recitation to upper classmen (sports scores, current movies, etc.)	Ⓗ Ⓜ ●	● Ⓜ Ⓛ
Inspections	Ⓗ Ⓜ ●	● Ⓜ Ⓛ
Opportunity to exercise individual initiative	Ⓗ Ⓜ ●	● Ⓜ Ⓛ
Comaraderie and esprit de corps	Ⓗ Ⓜ ●	● Ⓜ Ⓛ

INTRODUCTION TO FACTOR TABLES

Information contained in the following factor tables represents the basic statistical data from the GAO survey from which our initial conclusions about why students leave the Federal service academies were drawn.

Factors are numbered sequentially in these tables beginning with the student characteristic at entry factor judged most common to all academies during the first summer and ending with the nonacademy factor least common to all academies during the third-class year. These sequential numbers are the ones used in chapter 5 and attachment X when reference is made to particular factors.

A brief explanation of terms used in the tables is provided here, but the unfamiliar reader is advised to consult either or both of the fuller discussion of these terms in chapter 4 or the introductory texts referenced there.

The numbers which appear after the academy names are the order in which the factor was extracted in the factor analysis for that academy during that time frame. In cases of multiple numbers after academy names, numbers are included after each variable to show with which factor the variable was associated. We do not mean to imply statistical association between factors when more than one is included under the same topical heading for a particular academy. This grouping method helped us organize the results and see conceptual relationships among factors at different academies. The numbers not only help keep factors distinct in those multifactor situations but also are important _per se_ as an indicator of strength of the factor. Factors extracted early in an analysis--which would be indicated by lower numbers next to academy names--are generally more reliable than those extracted later.

The column headed "LOAD" contains the loadings of variables on factors. These loadings are directly interpretable as correlation coefficients between the variable and the factor. Thus, a loading of +.90, for instance, would indicate a strong tendency for the factor scores to go up or down as the variable score goes up or down, while a loading of -.30, for instance, would indicate a weak tendency for the factor score to go up as the variable score goes down and visa versa.

The column headed "(R)" contains the zero order correlations between the variables and the attrition criterion which was coded 1 for retention and 0 for attrition. At the larger academies these correlations had to exceed a minimum value of about .06 in order to be judged as different from zero correlation with that judgement having an expected accuracy of 95 out of 100. At the smaller academies the critical value for judgment of significance was about .14.

The "Variable Name" along the left of the page is a short description of either (1) the item from our questionnaire or the American Council on Education questionnaire or (2) the data element collected from academy records. In general, these items and data were scored in such a way that high scores mean possession of more of the attribute or characteristic implied by the variable name. Additionally, GAO items were scaled such that higher scores on evaluative questions implied more favorable attitudes about the academies.

The last piece of information in the tables, "Factor Validity," is the zero-order correlation of the factor score with the criterion (again coded 1 = retention; 0 = attrition). As discussed in chapter 4, factor scores were constructed from weighted linear composites of all variables in the analysis. Interpretation of validity coefficients for the factors was, therefore, somewhat more difficult than would have been the case had only those variables loading .30 or higher been used in constructing the factors. Our interpretation of those validities was based on an expectation derived from previous research and from the algebraic pattern of item loadings and validities.

ATTACHMENT IX

1st SUMMER

ATTACHMENT IX

ATTACHMENT IX

STUDENT CHARACTERISTICS

1. ACCURACY OF EXPECTATIONS

Variable Name	USAFA-19 Load (r)	USMA-17 Load (r)	USNA-21 Load (r)	USCGA-34 Load (r)	USMMA-28 Load (r)
Accuracy of expectations about first summer	44 (-03)	-50 (-02)		-45 (-04)	61 (-05)
Accuracy of expectations about regimentation	51 (03)	-57 (-02)	-44 (-02)	-60 (-00)	65 (01)
Accuracy of expectations about physical education training	34 (-06)	-39 (-16)	-46 (01)		
Accuracy of expectations about student privileges and leave	33 (-08)	-58 (-08)	-42 (01)	-48 (01)	55 (03)
Accuracy of expectations about opportunity for self-improvement		-35 (-04)	-36 (-06)		42 (01)
Accuracy of Expectations about demands on my time		-63 (-06)	-32 (-04)	-51 (04)	51 (06)
Accuracy of expectations about the honor concept or honor code			-43 (-02)		
Factor Validity	-028	108	016	-030	010

2. PARENTS SES

Variable Name	USAFA-13 Load (r)	USMA-20 Load (r)	USNA-7 Load (r)	USCGA-17 Load (r)	USMMA-20 Load (r)
Number of definite scholarship offers turned down to attend Academy	35 (01)				
Academic scholarship turned down	31 (-04)				
Highest level of formal education obtained by father	-60 (02)	63 (05)	54 (06)	64 (-02)	66 (03)
Highest level of formal education obtained by mother	-49 (-00)	54 (01)	44 (05)	56 (-04)	48 (08)
Estimated parental income	-51 (-03)	41 (-00)	40 (01)	50 (01)	53 (04)
Close friends, family, or relatives attended Academy or were career military or maritime personnel		34 (05)			
Father attended an Academy		35 (06)			
Father was career service		31 (08)			
Factor Validity	-024	102	048	036	076

3. COMMITMENT TO GRADUATION

Variable Name	USAFA-9 Load (r)	USMA-6 Load (r)	USNA-10 Load (r)	USCGA-9 Load (r)	USMMA-8 Load (r)
Chance you will get married while in college	44 (-30)	44 (-28)	43 (-16)	-35 (-11)	-53 (-12)
Chance you will change career choice	42 (-11)	51 (-06)	44 (-04)	-67 (-08)	
Chance you will fail one or more courses	33 (-02)	40 (-00)	40 (-05)	-47 (-03)	-43 (-09)
Chance you will drop out of college temporarily	59 (-16)	58 (-16)	65 (-10)	-59 (-16)	-77 (-13)
Chance you will drop out permanently	63 (-21)	55 (-14)	64 (-19)	-58 (-13)	-73 (-06)

COMMITMENT TO GRADUATION (CONTINUED)

Variable Name	USAFA-9 Load (R)	USMA-6 Load (R)	USNA-10 Load (R)	USCGA-9 Load (R)	USMMA-8 Load (R)
Chance you will transfer to another college before graduating	73 (-35)	67 (-20)	72 (-10)	-71 (-33)	-66 (-21)
Chance you will get married within a year after college		31 (02)			
Chance you will change major field		38 (-03)	32 (-02)	-59 (-12)	
Factor Validity	-366	-178	-182	237	134

4. STATUS PRIOR TO ENTRY

Variable Name	USAFA-8 Load (R)	USMA-22 Load (R)	USNA-14 Load (R)	USCGA-13 37 Load (R)	USMMA-21 Load (R)
Attended high school year prior to entry to Academy	83 (-01)		-79 (-06)	-87(-02)-13	86 (09)
Attended an Academy sponsored prep school year prior to entry to Academy	-68 (05)	-54 (04)	67 (09)	-47(03)-37	
Was a member of a scholastic honor society while in high school	39 (-04)				
Perceived academic ability at the time you entered the Academy	39 (-06)				
Average grade in secondary school	46 (-03)				
Converted high school rank	37 (-01)				
Physical aptitude exam	-36 (05)				
Served on active military duty year prior to entry to Academy		-32 (02)			
Attended a university, college, or junior college year prior to entry to Academy		-34 (01)		78(08)-13	-83 (-05)
Recruited athletic designation			-33 (-03)		
Factor Validity	011	006	050	046-13 059-37	064

5. BENEVOLENCE AND SOCIO-POLITICAL INFLUENCE

Variable Name	USAFA-7 Load (R)	USMA-5 Load (R)	USNA-9 Load (R)	USCGA-5 Load (R)	USMMA-2 Load (R)
Chance you will graduate with honors	38 (-00)	34 (-00)			34 (06)
Chance you will be elected to a student office	38 (03)	37 (12)			43 (08)
Chance you will be elected to an academic honor society	37 (05)				36 (02)
Chance you will be more successful after graduation than most students attending this college	34 (06)	41 (04)			32 (02)
Life goal of becoming accomplished in one of the performing arts (acting, dancing, etc)	31 (-01)	35 (-01)		-35 (-02)	32 (10)
Life goal of keeping up to date with political affairs	53 (03)	58 (06)	57 (12)	-52 (09)	75 (18)
Life goal of developing a meaningful philosophy of life	45 (-01)	53 (-08)	45 (03)	-52 (08)	54 (24)

BENEVOLENCE AND SOCIO-POLITICAL INFLUENCE (CONTINUED)

Variable Name	USAFA-7 Load (R)	USMA-5 Load (R)	USNA-9 Load (R)	USCGA-5 Load (R)	USMMA-2 Load (R)
Life goal of influencing the political structure	60 (03)	59 (-06)	58 (05)	-54 (-02)	75 (13)
Life goal of influencing social values	63 (03)	63 (-00)	62 (02)	-66 (06)	70 (08)
Life goal of raising a family	39 (-03)	39 (07)		-33 (02)	47 (04)
Life goal of having administrative responsibility for the work of others	46 (04)	42 (08)	38 (01)	-42 (10)	60 (10)
Life goal of helping others who are in difficulty	55 (01)	62 (-00)	59 (-01)	-59 (14)	74 (21)
Life goal of participating in a community action program	56 (00)	61 (05)	64 (10)	-68 (-04)	71 (17)
Life goal of becoming an authority in my field	44 (04)	48 (03)		-31 (06)	65 (12)
Life goal of chance you will be satisfied with your college		33 (14)			
Life goal of being successful in a business of my own		36 (-08)		-31 (-01)	49 (11)
Life goal of being very well off financially					52 (11)
Factor Validity	047	066	063	-019	243

6. CONSERVATISM IN VIEWS ABOUT RIGHTS OF COLLEGE OFFICIALS

Variable Name	USAFA-20 Load (R)	USMA-15 Load (R)	USNA-20 Load (R)	USCGA-11 Load (R)	USMMA-11 Load (R)
The Federal government is not doing enough to control environmental pollution	42 (-03)	54 (-05)	37 (-05)	48 (-14)	55 (01)
The Federal government is not doing enough to protect the consumer from faulty goods and services	39 (-06)	55 (-06)	45 (-06)	49 (-08)	54 (-00)
The Federal government is not doing enough to promote school desegregation	35 (-08)	44 (03)	31 (-00)		55 (-08)
Present political views (far left = 5; far right = 1)		33 (-02)			
Faculty promotions should be based in part on student evaluations		42 (-01)			45 (01)
College grades should be abolished		34 (-06)			
Women should receive the same salary and opportunities for advancement as men in comparable positions		30 (02)			44 (00)
College officials have the right to regulate student behavior off campus					-33 (03)
Factor Validity	014	-014	-016	-131	-039

7. POLITICAL CONSERVATISM

Variable Name	USAFA-6 Load (R)	USMA-7 Load (R)	USNA-6 Load (R)	USCGA-8 Load (R)	USMMA-14 Load (R)
Perceived political conservatism at the time you entered the Academy	-61 (-01)	57 (-01)	-65 (05)	-75 (05)	61 (-01)
Perceived political liberalism at the time you entered the Academy	63 (-00)	57 (-02)	65 (04)	72 (-08)	-75 (00)

ATTACHMENT IX

POLITICAL CONSERVATISM (CONTINUED)

VARIABLE NAME	USAFA-6 LOAD (R)	USMA-7 LOAD (R)	USNA-6 LOAD (R)	USCGA-8 LOAD (R)	USMMA-14 LOAD (R)
PRESENT POLITICAL VIEWS	56 (-04)	-38 (-02)	59 (-03)	65 (-07)	-51 (-03)
COLLEGE OFFICIALS HAVE THE RIGHT TO BAN PERSONS WITH EXTREME VIEWS FROM SPEAKING ON CAMPUS	-47 (03)	53 (02)	-43 (02)		
MOST COLLEGE OFFICIALS HAVE BEEN TOO LAX IN DEALING WITH STUDENT PROTESTS ON CAMPUS	-47 (03)	52 (06)	-48 (03)		35 (06)
MARIJUANA SHOULD BE LEGALIZED	45 (02)		39 (-02)	55 (-11)	
STUDENT PUBLICATIONS SHOULD BE CLEARED BY COLLEGE OFFICIALS	-38 (00)	47 (-01)	-37 (-00)		
THERE IS TOO MUCH CONCERN TO THE COURTS FOR THE RIGHTS OF CRIMINALS	-32 (00)	38 (-01)	-31 (02)		31 (04)
THE ACTIVITIES OF MARRIED WOMEN ARE BEST CONFINED TO THE HOME AND FAMILY	-35 (-05)	34 (-03)	-33 (-02)		32 (-00)
THE FEDERAL GOVERNMENT IS NOT DOING ENOUGH TO PROMOTE SCHOOL DESEGREGATION			32 (-00)	36 (-00)	
THE FEDERAL GOVERNMENT IS NOT DOING ENOUGH TO CONTROL ENVIRONMENTAL POLLUTION				36 (-14)	
FACTOR VALIDITY	003	-037	016	-063	094

8.

ATHLETIC ABILITY

VARIABLE NAME	USAFA-5 LOAD (R)	USMA-19 LOAD (R)	USNA-4 LOAD (R)	USCGA-6 LOAD (R)	USMMA-6 LOAD (R)
WON A VARSITY LETTER (SPORTS) IN HIGH SCHOOL	54 (03)	-39 (-05)	64 (04)	61 (-04)	53 (02)
WAS NAMED TO AN ALL-CITY, ALL COUNTRY, ALL STATE, OR ALL AMERICAN HIGH SCHOOL ATHLETIC TEAM	62 (-00)	-39 (02)	67 (-02)	51 (-10)	51 (-09)
HOW MANY DEFINITE SCHOLARSHIP OFFERS DID YOU TURN DOWN TO ACCEPT AN APPOINTMENT TO THE ACADEMY	38 (01)		33 (03)		
ATHLETIC SCHOLARSHIP TURNED DOWN	63 (01)	-41 (-01)	64 (01)	43 (05)	43 (-01)
PERCEIVED ATHLETIC ABILITY AT THE TIME YOU ENTERED THE ACADEMY	60 (00)	-63 (-05)	69 (-02)	64 (-02)	64 (-03)
ATTENDED ACADEMY BECAUSE OF OPPORTUNITY TO PLAY INTERCOLLEGIATE ATHLETICS	61 (-06)	-55 (-06)	60 (-05)	55 (00)	57 (-09)
HIGH SCHOOL ATHLETIC ACTIVITY SCOPE	71 (03)		76 (04)		
RECRUITED ATHLETIC DESIGNATION	59 (-01)		42 (-03)		
PHYSICAL APTITUDE EXAM	34 (05)	-34 (03)			
FACTOR VALIDITY	000	040	035	-037	-066

9.

PERCEIVED LEADERSHIP ABILITY AND SELF-CONFIDENCE

VARIABLE NAME	USAFA-3 LOAD (R)	USMA-2 LOAD (R)	USNA-3 LOAD (R)	USCGA-2 LOAD (R)	USMMA-5 39 LOAD (R)
PERCEIVED ATHLETIC ABILITY AT THE TIME OF ENTRY	32 (00)	31 (-05)		44 (-02)	
PERCEIVED CHEERFULNESS AT THE TIME OF ENTRY	52 (07)	45 (01)	45 (09)	42 (03)	39(-01)-5
PERCEIVED DRIVE TO ACHIEVE AT THE TIME OF ENTRY	47 (05)	36 (-01)	52 (07)	40 (09)	-51(09)-39 35(09)-5

PEPCEIVED LEADERSHIP ADILITY AND SELF-CONFIDENCE (CONTINUED)

Variable name	USAFA-3 Load (R)	USMA-2 Load (R)	USNA-3 Load (R)	USCGA-2 Load (R)	USMMA-5 39 Load (R)
Perceived leadership ability at the time of entry	65 (-00)	60 (03)	63 (03)	65 (03)	-32(12)-39 48(12)-5
Perceived originality at the time of entry	42 (00)	35 (-04)	49 (06)	45 (03)	51(-08)-5
Perceived popularity at the time of entry	62 (02)	62 (03)	55 (06)	64 (-03)	52(05)-5
Pepceived popularity with the opposite sex at the time of entry	67 (08)	72 (04)	58 (07)	71 (02)	69(16)-5
Perceived public speaking ability at the time of entry	55 (-04)	54 (07)	55 (08)	67 (-07)	55(09)-5
Perceived self-confidence (intellectual) at the time of entry	49 (-02)	45 (-03)	51 (-01)	61 (02)	55(09)-5
Perceived self-confidence (social) at the time of entry	72 (06)	70 (00)	63 (08)	76 (03)	72(07)-5
Perceived understanding of others at the time of entry	34 (02)	35 (04)	42 (01)	37 (00)	-35(09)-39 39(09)-5
Perceived writing ability at the time of entry			37 (02)		
Factor Validity	016	024	039	-020	037-5 -078-39

10. FAMILY ACADEMY AND SERVICE EXPEPIENCE

Vapiable name	USAFA-16 Load (R)	USMA-20 Load (R)	USNA-17 Load (R)	USCGA-19 28 Load (R)	USMMA-15 Load (R)
Close friends, family, or relatives attended Academy or was career military or maritime personnel	65 (11)		50 (07)	64(-01)-19	57 (07)
Father was career service	66 (04)		50 (04)	71(02)-19	63 (04)
When did you first seriously considep attending the Academy			-32 (-02)		
Fathep attended an Academy			34 (04)		
Brother attended an Academy				-59(13)-28	
Factor Validity	058		-024	-040-19 044-28	004

11. ARTISTIC ABILITY

Variable name	USAFA-17 Load (R)	USMA-25 Load (R)	USNA- Load (R)	USCGA-20 Load (R)	USMMA-26 Load (R)
Perceived artistic ability at the time of entry	-34 (-04)	51 (-04)		57 (-04)	53 (-11)
Perceived mechanical ability at the time of entry	-31 (-04)				
Perceived originality at the time of entry	-36 (00)	43 (-04)		48 (03)	
Chance you will graduate with honors	-36 (-00)				
Chance you will be elected to an academic honor society	-31 (05)				

ARTISTIC ABILITY (continued)

Variable name	USAFA-17 Load (r)	USMA-25 Load (r)	USNA- Load (r)	USCGA-20 Load (r)	USMMA-26 Load (r)
Perceived writing ability at the time you entered the Academy		33 (-07)			
Won a prize or award in an art competition in high school					50 (-06)
Factor Validity	105	-111		-007	-046

12. DESIRE TO SERVE COUNTRY/MILITARY OBLIGATION AS AN OFFICER

Variable name	USAFA-21 Load (r)	USMA-21 Load (r)	USNA- Load (r)	USCGA-22 Load (r)	USMMA-18 Load (r)
When did you first seriously consider attending the Academy	-31 (-04)				
Attended Academy because wanted to serve my military obligation as an officer	32 (04)	60 (04)		52 (02)	
Attended Academy because desire to fly	35 (09)			36 (09)	
Attended Academy because emphases on leadership training and physical development at Academy	33 (-00)	32 (08)			33 (01)
Attended Academy because wanted to serve my country	44 (04)	55 (04)		49 (08)	55 (-04)
Attended Academy because felt it would help me attain high rank in the service	31 (04)	53 (02)		49 (00)	61 (-10)
Attended Academy because opportunity for travel and adventure after graduation		31 (06)			
Attended Academy because desire to go to sea				50 (-01)	
Attended Academy because not accepted at my first choice (another academy or a civilian college)					36 (-06)
Attended Academy because honor and prestige of an Academy appointment					31 (-13)
Factor Validity	-048	-061		-018	-157

13. "STAR STATUS" (SCHOLARSHIP OFFERS)

Variable name	USAFA- Load (r)	USMA-16 Load (r)	USNA-22 Load (r)	USCGA-15 Load (r)	USMMA-10 Load (r)
Named to an All-City, All-County, All-State, or All-American high school athletic team		34 (02)			
Number of definite scholarship offers turned down to attend Academy		90 (01)	70 (03)	89 (11)	87 (-01)
Athletic scholarship turned down		46 (-01)	35 (01)		47 (-01)
Academic scholarship turned down		47 (-02)	44 (01)	53 (08)	61 (02)
Military scholarship turned down		33 (02)		41 (06)	
Received a high rating (Good, Excellent) in a state or regional music contest while in high school					37 (11)
Factor Validity		016	002	103	-011

ATTACHMENT IX

14. OVERALL ACADEMIC ABILITY - STANDARDIZED SLECTION MEASURES

Variable name	USAFA-2 Load (r)	USMA-8 Load (r)	USNA- Load (r)	USCGA-4 31 Load (r)	USMMA-3 Load (r)
Won a certificate of merit or letter of commendation in the National Merit Program	31 (02)				
Perceived academic ability at the time of entry	44 (-06)			-31(-02)-31	43 (-06)
Perceived mathematical ability at the time of entry	49 (05)				
Average grade in secondary school	49 (-03)			-62(11)-31	76 (00)
SAT verbal score	48 (-02)	91 (04)		77(-08)-4	
SAT mathematics score	74 (04)	87 (05)		77(-02)-4	
College Entrance Exam - English	50 (01)			76(-05)-4	
College Entrance Exam - Mathematics	76 (04)			82(00)-4	
Converted high school rank	58 (-01)	62 (02)		-50(05)-31 65(05)-4	81 (-06)
Composite rating	88 (-02)			96(-02)-4	58 (02)
Was a member of high school scholastic honor society				-59(05)-31	70 (00)
Factor Validity	-001	045		-037-4 -041-31	-038

15. BENEFITS FROM ATTENDING ACADEMY

Variable name	USAFA-4 Load (r)	USMA-10 Load (r)	USNA-8 Load (r)	USCGA- Load (r)	USMMA- Load (r)
Attended Academy because of the honor and prestige of an Academy appointment	57 (01)	-61 (-10)	51 (-07)		
Attended Academy because of the academic reputation of the Academy	30 (-02)	-36 (04)	32 (-00)		
Attended Academy because graduation offered social prestige	59 (02)	-62 (-02)	57 (-00)		
Attended Academy because of the pay while attending Academy	47 (04)	-36 (05)	37 (-06)		
Attended Academy because of the opportunity for travel and adventure after graduation	41 (11)		34 (04)		
Attended Academy because graduation offered the opportunity for long run financial security	59 (11)	-41 (11)	54 (02)		
Attended Academy because felt it would help me attain high rank in the service	36 (04)				
Attended Academy because of the tuition-free education	50 (02)	-42 (03)	43 (-06)		
Effect of belonging to an institution with a prestigious tradition on staying	39 (07)	-44 (06)	37 (-02)		
Effect of attitudes of the local community toward Academy students		-30 (02)			
Effect of the national economic conditions			36 (12)		
Life goal of being very well off financially			39 (-05)		
Factor Validity	083	011	-024		

16. PARTICIPATION IN HIGH SCHOOL NON-ATHLETIC ACTIVITIES

	USAFA-11	USMA-	USNA-12	USCGA-	USMMA-22
Variable Name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
Number of students in high school graduating class	-34 (04)				-41 (15)
Elected officer of one or more high school student organizations	44 (-04)		43 (-03)		
Had a major part in a play or was a stage manager or director while in high school	42 (03)		35 (01)		34 (10)
High school non-athletic activity score	59 (-00)		57 (03)		
Edited or worked on the school paper, yearbook, or literary magazine in high school					48 (10)
Was valedictorian or salutatorian of my graduating class					37 (-16)
Factor Validity	-056		060		-072

17. VERBAL ABILITY

	USAFA-22	USMA-	USNA-19	USCGA-	USMMA-9
Variable Name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
Perceived mathematical ability at the time of entry	32 (05)				
Perceived writing ability at the time of entry	-41 (-05)		47 (02)		-48 (-02)
SAT Verbal score	-56 (-02)		66 (-02)		-75 (-02)
College Entrance Exam - English	-55 (01)		60 (-03)		-75 (10)
Composite rating					-35 (02)
Factor Validity	052		-016		-078

18. ACADEMIC SELF-CONFIDENCE

	USAFA-	USMA-	USNA-18	USCGA-7	USMMA-23
Variable Name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
Chance you will graduate with honors			66 (-01)	71 (15)	-59 (06)
Chance you will be elected to a student office			36 (05)	44 (08)	-41 (08)
Chance you will be elected to an academic honor society			54 (-00)	70 (09)	-63 (02)
Chance you will be more successful after graduation than most students attending this college			40 (03)	53 (02)	
Chance you will be satisfied with your college				43 (22)	-31 (02)
Factor Validity			-011	171	073

19. SOCIALLY ACCEPTABLE REASONS FOR ATTENDING

VARIABLE NAME	USAFA-21 LOAD (R)	USMA-21 LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA-18 LOAD (R)
WHEN FIRST CONSIDERED ATTENDING ACADEMY	-31 (-04)				
ATTENDED BECAUSE WANTED TO SERVE MILITARY OBLIGATION AS OFFICER	32 (04)	60 (04)			
ATTENDED BECAUSE OF DESIRE TO FLY	35 (09)				
ATTENDED BECAUSE OF EMPHASIS ON LEADERSHIP AND PHYSICAL DEVELOPMENT	33 (00)	32 (08)			33 (01)
ATTENDED BECAUSE OF DESIRE TO SERVE COUNTRY	44 (04)	55 (04)			55 (-04)
ATTENDED BECAUSE OF OPPORTUNITY FOR HIGH RANK IN SERVICE	31 (04)	53 (02)			61 (-10)
ATTENDED BECAUSE OF OPPORTUNITY FOR TRAVEL AND ADVENTURE		31 (06)			
ATTENDED BECAUSE NOT ACCEPTED AT FIRST CHOICE					36 (-06)
ATTENDED BECAUSE OF HONOR AND PRESTIGE OF ACADEMY APPOINTMENT					31 (-13)
FACTOR VALIDITY	-048	-061			-157

20. MATH ABILITY

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-16 LOAD (R)	USMMA-13 LOAD (R)
PERCEIVED ACADEMIC ABILITY AT THE TIME OF ENTRY				51 (-02)	37 (-06)
PERCEIVED MATHEMATICAL ABILITY AT THE TIME OF ENTRY				65 (02)	62 (-07)
SAT MATH SCORE					76 (-01)
COLLEGE ENTRANCE EXAM - MATH					75 (09)
COMPOSITE RATING					56 (02)
FACTOR VALIDITY				-025	-024

21. CONSERVATISM IN VIEWS ABOUT RIGHTS OF COLLEGE OFFICIALS

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-30 LOAD (R)	USMMA-34 LOAD (R)
COLLEGE OFFICIALS HAVE THE RIGHT TO BAN PERSONS WITH EXTREME VIEWS FROM SPEAKING ON CAMPUS				49 (03)	63 (00)
MOST COLLEGE OFFICIALS HAVE BEEN TOO LAX IN DEALING WITH STUDENT PROTESTS ON CAMPUS				32 (10)	52 (06)
STUDENT PUBLICATIONS SHOULD BE CLEARED BY COLLEGE OFFICIALS				32 (-04)	64 (-03)
THE ACTIVITIES OF MARRIED WOMEN ARE BEST CONFINED TO THE HOME AND FAMILY				46 (10)	
STUDENTS FROM DISADVANTAGED SOCIAL BACKGROUNDS SHOULD BE GIVEN PREFERENTIAL TREATMENT IN COLLEGE ADMISSIONS					34 (-05)
COLLEGE OFFICIALS HAVE THE RIGHT TO REGULATE STUDENT BEHAVIOR OFF CAMPUS					37 (02)
FACTOR VALIDITY				061	-021

22. COMPOSITE-RATING - ACADEMIC ABILITY

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA-2 LOAD (R)	USCGA-4 LOAD (R)	USMMA- LOAD (R)
ATTENDED HIGH SCHOOL YEAR PRIOR TO ENTRY TO ACADEMY			33 (-06)		
MEMBER OF A SCHOLASTIC HONOR SOCIETY WHILE IN HIGH SCHOOL			53 (01)		
WON A CERTIFICATE OF MERIT OR LETTER OF COMMENDATION IN THE NATIONAL MERIT PROGRAM			34 (-04)		
VALEDICTORIAN OR SALUTATORIAN OF MY HIGH SCHOOL GRADUATING CLASS			32 (01)		
ACADEMIC SCHOLARSHIP TURNED DOWN			31 (01)		
PERCEIVED ACADEMIC ABILITY AT THE TIME OF ENTRY			66 (-02)		
PERCEIVED MATHEMATICAL ABILITY AT THE TIME OF ENTRY			65 (-04)		
PERCEIVED SELF-CONFIDENCE (INTELLECTUAL) AT THE TIME OF ENTRY			33 (-01)		
AVERAGE GRADE IN SECONDARY SCHOOL			70 (-02)		
CHANCE YOU WILL GRADUATE WITH HONORS			30 (-01)		
SAT VERBAL SCORE			47 (-02)	77 (-08)	
SAT MATH SCORE			76 (00)	77 (-02)	
COLLEGE ENTRANCE EXAM - ENGLISH			50 (-03)	76 (-05)	
COLLEGE ENTRANCE EXAM - MATH			74 (02)	82 (00)	
CONVERTED HIGH SCHOOL RANK			75 (-02)	65 (05)	
COMPOSITE RATING			87 (02)	96 (-02)	
FACTOR VALIDITY			004	-037	

23. DESIRE FOR ADVENTURE AND TRAVEL

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA-25 LOAD (R)
ATTENDED ACADEMY BECAUSE DESIRE TO GO TO SEA					-55 (11)
ATTENDED ACADEMY BECAUSE OPPORTUNITY FOR TRAVEL AND ADVENTURE AFTER GRADUATION					-60 (04)
FACTOR VALIDITY					-164

24. COMPOSITE RATING - ACTIVITIES

VARIABLE NAME	USAFA- LOAD (R)	USMA-9 LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
COMPOSITE RATING		78 (-00)			
HIGH SCHOOL NON-ATHLETIC ACTIVITY SCORE		63 (00)			
RECRUITED ATHLETIC DESIGNATION		61 (-03)			
PHYSICAL APTITUDE EXAM		40 (03)			
FACTOR VALIDITY		003			

25. COMPOSITE RATING - MATH ABILITY

Variable Name	USAFA-2 Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA-13 Load (R)
Won a certificate of merit or letter of commendation in the National Merit Program	31 (02)				
Perceived academic ability at the time of entry	44 (-06)				37 (-06)
Perceived mathematical ability at the time of entry	49 (05)				62 (-07)
Average grade in secondary school	49 (-03)				
SAT Verbal score	48 (-02)				
SAT Math score	74 (04)				76 (-01)
College Entrance Exam - English	50 (01)				
College Entrance Exam - Math	76 (04)				75 (09)
Converted high school rank	58 (-01)				
Composite rating	88 (-02)				56 (02)
Factor Validity	-001				-024

26. COMPOSITE RATING - HIGH SCHOOL ACADEMIC PERFORMANCE

Variable Name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA-3 Load (R)
Member of scholastic honor society while in high school					70 (00)
Perceived academic ability at the time of entry					43 (-06)
Average grade in secondary school					76 (00)
Converted high school rank					81 (-06)
Composite rating					58 (02)
Factor Validity					-038

27. COMPOSITE RATING - VERBAL ABILITY

Variable Name	USAFA- Load-(R)	USMA- Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA-9 Load (R)
Perceived writing ability at the time of entry					-48 (-02)
SAT Verbal score					-75 (-02)
College Entrance Exam - English					-75 (10)
Composite rating					-35 (02)
Factor Validity					-078

28. PRESTIGE AS AN INCENTIVE TO ATTEND AND STAY

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA-25 Load (R)	USMMA- Load (R)
Attended Academy because honor and prestige of an Academy appointment				-69 (-01)	
Attended Academy because academic reputation of the Academy				-31 (-01)	
Attended Academy because graduation offered social prestige				-61 (04)	
Attended Academy because emphasis on leadership training and physical development at Academy				-30 (08)	
Effect of belonging to an institution with a prestigious tradition on staying				-41 (-08)	
Factor Validity				007	

29. COMMITMENT TO CAREER CHOICE

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA-35 Load (R)
Chance you will change major field					77 (-08)
Chance you will change career choice					71 (-02)
Factor Validity					-132

30. SELF-RATED ACADEMIC ABILITY

Variable name	USAFA- Load (R)	USMA-4 Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA- Load (R)
Was a member of a scholastic honor society in high school		42 (-01)			
Perceived academic ability at the time of entry		69 (-09)			
Perceived drive to achieve at the time of entry		31 (-01)			
Perceived mathematical ability at the time of entry		62 (-07)			
Perceived self-confidence (intellectual) at the time of entry		37 (-03)			
Average grade in secondary school		50 (04)			
Chance you will fail one or more courses		-33 (-00)			
Chance you will graduate with honors		49 (-00)			
Chance you will be elected to an academic honor society		42 (02)			
Factor Validity		-122			

31. PERCEIVED AND MEASURED ACADEMIC ABILITY

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-2 Load (R)	USCGA- Load (R)	USMMA- Load (R)
Attended high school year prior to entry into Academy			33 (-06)		
Was a member of a scholastic honor society			53 (01)		
Won a certificate of merit or letter of commendation in the National Merit Program			34 (-04)		
Was validictorian or salutatorian of my graduating class			32 (01)		
Academic scholarship turned down			31 (01)		
Perceived academic ability at the time you entered the Academy			66 (-02)		
Perceived mathematical ability at the time you entered the Academy			65 (-04)		
Perceived self-confidence (intellectual) at the time you entered the Academy			33 (-01)		
Average grade in secondary school			70 (-02)		
Graduate with honors			30 (-01)		
SAT Verbal score			47 (-02)		
SAT Mathematics score			76 (00)		
College Entrance Exam - English			50 (-03)		
College Entrance Exam - Mathematics			75 (-02)		
Converted high school rank			75 (-02)		
Composite rating			87 (02)		
Factor Validity			004		

ATTACHMENT IX

32.

GENERAL SATISFACTION

VARIABLE NAME	USAFA-1 LOAD (R)	USMA-1 LOAD (R)	USNA-1 LOAD (R)	USCGA-1 LOAD (R)	USMMA-1 LOAD (R)
ATTENDED ACADEMY BECAUSE HONOR AND PRESTIGE OF AN ACADEMY APPOINTMENT					32 (-13)
ATTENDED ACADEMY BECAUSE ACADEMIC REPUTATION OF THE ACADEMY					46 (10)
ATTENDED ACADEMY BECAUSE WANTED TO SERVE MY MILITARY OBLIGATION AS AN OFFICER	37 (04)	30 (04)	41 (06)		
ATTENDED ACADEMY BECAUSE DESIRE TO GO TO SEA			41 (03)		
ATTENDED ACADEMY BECAUSE EMPHASIS ON LEADERSHIP TRAINING AND PHYSICAL DEVELOPMENT AT ACADEMY	46 (-00)	49 (08)	47 (07)		46 (01)
ATTENDED ACADEMY BECAUSE WANTED TO SERVE MY COUNTRY	44 (04)	36 (04)	52 (04)		
ATTENDED ACADEMY BECAUSE FELT IT WOULD HELP ME ATTAIN HIGH RANK IN THE SERVICE	32 (04)		35 (04)		
ACCURACY OF EXPECTATIONS ABOUT REGIMENTATION WERE	37 (03)				
ACCURACY OF EXPECTATIONS ABOUT OPPORTUNITY FOR SELF-IMPROVEMENT WERE	41 (06)	31 (04)	35 (-04)		
ACCURACY OF EXPECTATIONS ABOUT DEMANDS ON MY TIME WERE	32 (-01)				
WOULD YOU ENCOURAGE A CLOSE FRIEND TO COME TO THE ACADEMY	63 (06)	54 (08)	59 (07)	63 (03)	37 (-03)
YOUR EMOTIONAL FEELING ABOUT THE ACADEMY	70 (09)	63 (18)	69 (12)	55 (-04)	31 (-04)
FEELING BOTHERED THAT THE THINGS I HAD TO DO WERE AGAINST MY JUDGMENT	-39 (-04)	-33 (-01)	-35 (02)		
SIMILARITY OF MY ATTITUDES WITH STUDENTS AT THE ACADEMY			38 (02)		
SIMILARITY OF MY ATTITUDES WITH STUDENTS WHO RECENTLY GRADUATED FROM THE ACADEMY		30 (09)	37 (08)		
SIMILARITY OF MY ATTITUDES WITH STUDENTS YOU KNEW WHO RESIGNED	-51 (-07)	-42 (-12)		-52 (-02)	
SIMILARITY OF MY ATTITUDES WITH OTHER STUDENTS YOU KNEW WHO WERE SEPARATED	-37 (-03)			-40 (02)	
SIMILARITY OF MY ATTITUDES WITH OFFICERS AT THE ACADEMY	47 (11)	41 (16)	46 (08)		
SIMILARITY OF MY ATTITUDES WITH OTHER OFFICERS	33 (04)		32 (09)		
SIMILARITY OF MY ATTITUDES WITH STUDENTS ATTENDING CIVILIAN COLLEGES	-43 (-08)	-37 (-12)			
SIMILARITY OF MY ATTITUDES WITH STUDENTS AT OTHER ACADEMIES			33 (08)		
EFFECT OF ANTIMILITARISTIC ATTITUDES OF SOME PEOPLE TODAY ON STAYING	36 (-04)	33 (01)	32 (05)		
EFFECT OF ATTITUDES OF THE LOCAL COMMUNITY TOWARD ACADEMY STUDENTS ON STAYING	31 (-01)				
EFFECT OF ADVERSE PUBLICITY ABOUT THE MILITARY ON STAYING	35 (-01)	32 (02)			
EFFECT OF CHANGING MILITARY OR MARITIME CAREER OPPORTUNITIES ON STAYING	34 (05)	35 (12)	34 (07)	39 (08)	
EFFECT OF GRADUATE SCHOOL OPPORTUNITIES ON STAYING		36 (21)	35 (12)	36 (23)	

GENERAL SATISFACTION (CONTINUED)

VARIABLE NAME	USAFA-1 LOAD (R)	USMA-1 LOAD (R)	USNA-1 LOAD (R)	USCGA-1 LOAD (R)	USMMA-1 LOAD (R)
EFFECT OF CHANGES IN SERVICE PERSONNEL POLICIES ON STAYING	32 (01)	32 (13)		40 (05)	
EFFECT OF INCREASING FAMILIARITY WITH THE MILITARY OR MARITIME SERVICE ON STAYING	59 (18)	56 (18)	54 (16)	51 (24)	
OF THOSE CLOSE FRIENDS IN YOUR COMPANY OR SQUADRON, HOW DO (OR DID) THEY GENERALLY FEEL ABOUT THE ACADEMY	52 (-01)	46 (-03)	48 (-00)	34 (-03)	38 (-21)
DISCIPLINARY ACTION IS APPROPRIATE TO THE INFRACTION	34 (-08)				
EFFECT OF OPPORTUNITY FOR PERSONAL GROWTH AND DEVELOPMENT ON STAYING	53 (08)	61 (16)	58 (06)	42 (04)	60 (01)
EFFECT OF LIVING IN A COMPETITIVE ENVIRONMENT ON STAYING	50 (09)	55 (05)	54 (05)		53 (09)
EFFECT OF BELONGING TO AN INSTITUTION WITH A PRESTIGIOUS TRADITION ON STAYING	42 (07)	47 (-06)	49 (-02)		70 (03)
EFFECT OF FREQUENT CHALLENGES TO ABILITY ON STAYING	57 (01)	62 (10)	62 (03)		67 (-01)
EFFECT OF LEADING A DISCIPLINED WELL-STRUCTURED LIFE ON STAYING	67 (06)	63 (08)	60 (08)	42 (06)	50 (08)
EFFECT OF QUALITY OF MILITARY OR MARITIME TRAINING PROGRAM ON STAYING	65 (03)	56 (13)	61 (06)	49 (02)	32 (08)
FACTOR VALIDITY	053	188	103	072	057

33. ROLE TENSION

VARIABLE NAME	USAFA-10 LOAD (R)	USMA-3 LOAD (R)	USNA-11 LOAD (R)	USCGA-10 LOAD (R)	USMMA-4 LOAD (R)
FEELING OF NOT KNOWING WHAT ACADEMY OFFICIALS AND UPPERCLASSMEN EXPECTED OF ME	55 (-02)	51 (10)	-53 (00)	69 (09)	-47 (02)
FEELING THAT I WASN'T FULLY QUALIFIED TO HANDLE WHAT ACADEMY OFFICIALS AND UPPERCLASSMEN EXPECTED OF ME	52 (00)	51 (02)	-53 (-02)	44 (01)	-54 (03)
FEELING OF NOT KNOWING WHAT MY SUPERIOR COMMISSIONED OFFICERS AND UPPERCLASSMEN THOUGHT OF ME OR HOW THEY EVALUATED MY PERFORMANCE	59 (04)	53 (14)	-50 (05)	53 (05)	-66 (03)
THINKING THAT I COULD NOT SATISFY THE CONFLICTING DEMANDS OF VARIOUS ACADEMY OFFICIALS AND UPPERCLASSMEN	63 (-08)	65 (03)	-57 (-04)	61 (-05)	-62 (-13)
THINKING THAT THE AMOUNT OF WORK I HAD TO DO MIGHT INTERFERE WITH HOW WELL IT GOT DONE	55 (-05)	62 (06)	-52 (01)	51 (07)	-67 (05)
FEELING THAT THE THINGS I HAD TO DO WERE AGAINST MY JUDGMENT	36 (-04)	32 (-01)		30 (-05)	-31 (00)
FEELING THAT I HAD TOO LITTLE RESPONSIBILITY AND AUTHORITY DELEGATED TO ME BY SUPERIOR OFFICERS AND UPPERCLASSMEN	38 (07)	34 (10)	-30 (10)	33 (10)	
FEELING OF BEING UNCLEAR JUST WHAT THE SCOPE OF MY RESPONSIBILITIES OF MY ROLE WERE	63 (-06)	63 (04)	-54 (01)	59 (06)	-61 (-01)
SATISFACTION WITH THE OPPORTUNITIES TO BE ALONE DURING THE 1ST SUMMER				-32 (07)	
FACTOR VALIDITY	-011	088	-059	083	-003

ATTACHMENT IX

34. ACADEMY/MILITARY REFERENCE GROUP IDENTIFICATION

Variable name	USAFA-14 Load (R)	USMA-12 Load (R)	USNA-23 Load (R)	USCGA-21 Load (R)	USMMA-19 16 Load (R)
Similarity of attitudes with students at the Academy	38 (-01)	40 (04)		41 (01)	
Similarity of attitudes with students who recently graduated from the Academy	38 (05)	39 (09)	31 (08)	50 (07)	58(14)-19
Similarity of attitudes with officers at the Academy	33 (11)	40 (16)	38 (08)	46 (03)	66(03)-16
Similarity of attitudes with other officers	51 (04)	56 (04)	60 (09)	71 (05)	72(-15)-16
Similarity of attitudes with other military or maritime personnel	51 (-02)	51 (01)	61 (03)	60 (-01)	61(-11)-16
Similarity of attitudes with students attending civilian colleges	31 (-08)				
Similarity of attitudes with students at other Academies	32 (05)	40 (08)		36 (05)	31(-00)-19
Similarity of attitudes with peers in home town	36 (-04)				
Would encourage a close friend to come to the Academy					31(-03)-16
Emotional feelings about the Academy					46(-04)-16
Of those close friends in your community or squadron, how do (or did) they generally feel about the Academy					39(-21)-16
Desired less actual emphasis on inspections					30(-03)-16
Number of close friends in squad or company					32(26)-19
Factor Validity	-024	036	108	001	-153-16 132-19

35. SATISFACTION WITH MILITARY TRAINING EXERCISES

Variable name	USAFA-18 Load (R)	USMA-18 Load (R)	USNA-16 Load (R)	USCGA-27 Load (R)	USMMA-24 Load (R)
Desired less actual emphasis on drills and ceremonies	43 (-04)	49 (00)		46 (11)	63 (-03)
Desired less actual emphasis on learning professional	53 (14)	48 (07)	-28 (11)	55 (12)	35 (-16)
Desired less actual emphasis on inspections	53 (01)	57 (01)	-32 (-00)	40 (07)	52 (-03)
Desired less actual emphasis on learning other information		52 (16)		60 (13)	
Desired less actual emphasis on opportunity to exercise individual initiative		-33 (-17)		-37 (00)	
Effect of antimilitaristic attitudes of some people today on staying			28 (05)		
Effect of adverse publicity about the military on staying			26 (04)		
Desired less actual emphasis on physical conditioning					67 (03)
Factor Validity	079	125	050	163	034

36. PERCEIVED UNIFORMITY OF REGULATION COMPLIANCE AND APPLICATION

	USAFA-15	USMA-14	USNA-15	USCGA-12	USMMA-17
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
STUDENT REGULATIONS TEND TO BE APPLIED UNIFORMLY	-34 (-18)	60 (-19)	55 (-26)	-71 (-30)	61 (-24)
DISCIPLINARY ACTION TENDS TO BE CONSISTENT FOR THE SAME INFRACTION	-36 (-08)	66 (-09)	58 (-23)	-63 (-19)	75 (-10)
STUDENTS TEND TO CONSISTENTLY COMPLY WITH THE REGULATIONS	-31 (-22)	44 (-21)	48 (-19)	-57 (-29)	47 (-30)
DISCIPLINARY ACTION IS APPROPRIATE TO THE INFRACTION		36 (-02)	36 (-08)	-42 (-07)	46 (-15)
FACTOR VALIDITY	234	-248	-307	358	-219

37. UPPERCLASSMAN LEADERSHIP

	USAFA-	USMA-23	USNA-5	USCGA-23	USMMA-37
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP		38 (08)	-60 (05)	-53 (11)	53 (08)
UPPERCLASSMEN IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE		35 (-00)	-55 (-08)	-32 (06)	
UPPERCLASSMEN IN YOUR UNIT LISTENED TO MY PROBLEMS		71 (-10)	-69 (-05)	-66 (00)	71 (-03)
UPPERCLASSMEN IN YOUR UNIT WERE EASY TO APPROACH		70 (-14)	-62 (-07)	-75 (-01)	71 (-14)
UPPERSLASSMEN IN YOUR UNIT HAD CONFIDENCE AND TRUST IN ME		55 (-06)	-58 (01)	-58 (02)	70 (-08)
FACTOR VALIDITY		-152	044	-070	-058

38. CLASSMATE LEADERSHIP

	USAFA-	USMA-11	USNA-24	USCGA-3	USMMA-7
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
CLASSMATES IN YOUR UNIT ENCOURAGED EACH OTHER TO GIVE BEST EFFORT		60 (-02)	-53 (-02)	71 (-04)	-71 (05)
CLASSMATES IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE		56 (04)	-43 (03)	74 (01)	-50 (09)
CLASSMATES IN YOUR UNIT LISTENED TO WHAT I SAID		59 (-04)	-48 (-02)	59 (01)	-61 (-04)
CLASSMATES IN YOUR UNIT WERE EASY TO APPROACH		63 (-02)	-58 (-08)	66 (-02)	-67 (-08)
CLASSMATES IN YOUR UNIT MERITED MY CONFIDENCE AND TRUST		71 (-03)	-67 (-02)	72 (-01)	-64 (00)
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP				36 (11)	
UPPERCLASSMEN IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE				38 (06)	
UPPERCLASSMEN IN YOUR UNIT HAD CONFIDENCE AND TRUST IN ME				34 (02)	
FACTOR VALIDITY		013	027	-024	-027

39.

IDENTIFICATION WITH NON-ACADEMY PEER REFERENCE GROUPS

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-13 Load (R)	USCGA-26 Load (R)	USMMA- Load (R)
Similarity of attitudes with students you know who resigned			59 (-10)	35 (-02)	
Similarity of attitudes with other students you know who were separated			54 (-06)		
Similarity of attitudes with students attending civilian colleges			48 (-06)	70 (00)	-57(-09)
Similarity of attitudes with peers in home town			43 (-04)	69 (05)	-51(01)
Factor Validity			-106	037	-138

40.

UPPERCLASSMAN AND CLASSMATE LEADERSHIP

Variable name	USAFA-12 Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA- Load (R)
Classmates in your unit encouraged each other to give best effort	55 (06)				
Classmates in your unit maintained high standards of performance	53 (11)				
Classmates in your unit listened to what I said	44 (03)				
Classmates in your unit were easy to approach	51 (-01)				
Classmates in your unit merited my confidence and trust	58 (01)				
Upperclassmen in your unit gave special attention to those who needed help	49 (14)				
Upperclassmen in your unit maintained high standards of performance	51 (09)				
Upperclassmen in your unit listened to my problems	53 (-01)				
Upperclassmen in your unit were easy to approach	37 (-06)				
Upperclassmen in your unit had confidence and trust in me	47 (03)				
Factor Validity	074				

41.

ACHIEVEMENT VIA CONFORMITY

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA-29 Load (R)	USMMA- Load (R)
Drive to achieve at time of entry				-37 (09)	
Effect of opportunity for personal growth and development on staying				-33 (04)	
Effect of living in a competitive environment on staying				-63 (02)	
Effect of belonging to an institution with a prestigious tradition on staying				-35 (-08)	

ACHIEVEMENT VIA CONFORMITY (CONTINUED)

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-29 LOAD (R)	USMMA- LOAD (R)
EFFECT OF FREQUENT CHALLENGE TO ABILITY ON STAYING				-61 (-05)	
EFFECT OF LEADING A DISCIPLINED WELL-STRUCTURED LIFE ON STAYING				-34 (06)	
FACTOR VALIDITY				-002	

42. ADEQUACY OF CONTACT WITH FAMILY

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA-31 LOAD (R)
HOW ADEQUATE WAS YOUR CONTACT (VISITS, LETTERS, TELEPHONE CALLS) WITH YOUR FAMILY AND FRIENDS DURING THE 1ST SUMMER					-34 (-12)
FACTOR VALIDITY					036

43. EXTERNAL OPPORTUNITIES AND EXPECTATIONS ABOUT PHYSICAL CONDITIONING

Variable name	USAFA- Load (r)	USMA- Load (r)	USNA- Load (r)	USCGA- Load (r)	USMMA- Load (r)
Expectations about physical education training					33 (-18)
Effect on staying of changing military career opportunities					-39 (10)
Effect on staying of national economic conditions					-42 (19)
Effect on staying of graduate school opportunities					-31 (19)
Effect on staying of increased military familiarity					-31 (21)
Factor Validity					-245

44. EXPECTATION OF SUCCESS AND SATISFACTION AND ACTUAL SATISFACTION

Variable name	USAFA- Load (r)	USMA-13 Load (r)	USNA- Load (r)	USCGA-24 Load (r)	USMMA- Load (r)
Chance you will be satisfied with your college		31 (14)		37 (22)	
Desired less actual emphasis on physical conditioning		-34 (-10)			
Chance you will get married within a year after college		21 (02)			
Chance you will graduate with honors		26 (-00)			
Chance you will be elected to a student office		22 (12)			
Chance you will be elected to an academic honor society		25 (02)			
Chance you will be more successful than most students attending this college		26 (04)			
Desired less actual emphasis on athletics		-26 (-05)			
Desired less actual emphasis on comaradarie		-22 (-18)			
				39 (01)	
Factor Validity		172		038	

4TH CLASS

ATTACHMENT IX

45. ATHLETIC ABILITY

VARIABLE NAME	USAFA-6 LOAD (R)	USMA-11 LOAD (R)	USNA-4 LOAD (R)	USCGA-8 LOAD (R)	USMMA-9 LOAD (R)
Named to an All-City, All-County, All-State, or All-American high school athletic team	62 (-04)	-44 (-04)	-59 (03)		-56 (-14)
Athletic scholarship turned down	66 (-06)	-48 (-04)		33 (07)	-49 (-07)
Perceived athletic ability at the time of entry	58 (-02)	-45 (-03)	-70 (04)	59 (02)	-69 (-08)
Perceived popularity at the time of entry	31 (-02)				
Attended Academy because of opportunity to play intercollegiate sports	67 (-06)				-57 (-19)
Recruited athletic designation	64 (-06)				
Chance you will graduate with honors		32 (05)			
Won a varsity letter (sports) in high school			-68 (04)	54 (04)	-50 (-08)
Perceived popularity with the opposite sex at time of entry			-31 (04)		
High school athletic activity score			-80 (05)		
Frequency played athletics in free time at Academy			-38 (16)	39 (08)	-35 (08)
Frequency discussed sports					-43 (-06)
Factor Validity	-067	027	073	-063	120

46. POLITICAL CONSERVATISM

VARIABLE NAME	USAFA-14 LOAD (R)	USMA-6 LOAD (R)	USNA-16 LOAD (R)	USCGA-7 24 LOAD (R)	USMMA-20 11 30 LOAD (R)
Political conservatism at time of entry	46 (03)		-38 (05)	-67(-038)F7	-61(-04)-20
Similarity of my attitudes to Academy students	36 (-07)				
College officials have the right to ban persons with extreme views from speaking on campus	45 (034)	-58 (03)		56(05)-24	-60(05)-11
Marijuana should be legalized	-40 (-046)			54(-040) 7	34(-09)-20
Student publications should be cleared by college officials	36 (05)	-57 (03)			-73(05)-11
Most college officials have been too lax in dealing with student protests on campus		-54 (04)		-39(054) 7	-51(12)-11
There is too much concern to the courts for the rights of criminals		-39 (07)			
The activities of married women are best confined to the home and family		-34 (02)			
Effect of changes in service personnel policies on staying			33 (10)		
The Federal Government is not doing enough to promote school desegregation			34 (-03)	36(068) 7	
Present political views (5 = far left; 1 = far right)				66(-043) 7	60(-10)-20
College grades should be abolished				31(-074) 7	-37(-08)-30

POLITICAL CONSERVATISM (CONTINUED)

	USAFA-14	USMA-6	USNA-16	USCGA-7 24	USMMA-20 11 30
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
STUDENTS FROM DISADVANTAGED SOCIAL BACKGROUNDS SHOULD BE GIVEN PREFERENTIAL TREATMENT IN COLLEGE ADMISSIONS					-37(08)-11
COLLEGE OFFICIALS HAVE THE RIGHT TO REGULATE STUDENT BEHAVIOR OFF CAMPUS					-36(05)-11
WOMEN SHOULD RECEIVE THE SAME SALARY AND OPPORTUNITIES FOR ADVANCEMENT AS MEN IN COMPARABLE POSITIONS					31(19)-20
FACTOR VALIDITY	-0078	054	057	-064-7 121-24	-128E11 -039E20 027F30

47.

ACCURACY OF EXPECTATIONS

	USAFA-7	USMA-21	USNA-23	USCGA-18 31	USMMA-14
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
ACCURACY OF EXPECTATIONS ABOUT FIRST SUMMER	67 (-03)		35 (-06)		68 (-15)
ACCURACY OF EXPECTATIONS ABOUT FOURTH CLASS SYSTEM	71 (-02)			81(-10)-18	80 (-10)
ACCURACY OF EXPECTATIONS ABOUT PHYSICAL EDUCATION TRAINING	33 (-02)	-35 (-06)		45(-08)-31	
ACCURACY OF EXPECTATIONS ABOUT DEMANDS ON MY TIME	43 (-02)	-37 (05)	44 (-08)		
ACCURACY OF EXPECTATIONS ABOUT STUDENT PRIVILEGES AND LEAVE	34 (-06)	-38 (02)	44 (03)	46(-14)-18	51 (05)
ACCURACY OF EXPECTATIONS ABOUT ACADEMIC PROGRAM		-36 (06)			
ACCURACY OF EXPECTATIONS ABOUT REGIMENTATION				56(-12)-18	72 (-06)
ACCURACY OF EXPECTATIONS ABOUT OPPORTUNITY FOR SELF-IMPROVEMENT				36(-10)-31	36 (08)
FREQUENCY STUDIED AFTER TAPS				33(08)-31	
FACTOR VALIDITY	079	-079	034	-074-18 020-31	-067

48.

BENEVOLENCE AND SOCIO-POLITICAL INFLUENCE

	USAFA-8	USMA-7	USMA-15	USCGA-10	USMMA-4
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
CHANCE YOU WILL GET MARRIED WITHIN A YEAR AFTER COLLEGE	31 (-06)				
CHANCE YOU WILL GRADUATE WITH HONORS	31 (04)	36 (05)			
LIFE GOAL OF BECOMING ACCOMPLISHED IN ONE OF THE PERFORMING ARTS (DANCING, ACTING, ETC.)	30 (-03)	36 (-02)		50 (-08)	
LIFE GOAL OF KEEPING UP TO DATE WITH POLITICAL AFFAIRS	43 (03)		47 (07)		
LIFE GOAL OF INFLUENCING SOCIAL VALUES	55 (-08)			66 (-04)	78 (04)
LIFE GOAL OF RAISING A FAMILY	47 (-03)	44 (04)			

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BENEVOLENCE AND SOCIO-POLITICAL INFLUENCE (CONTINUED)

VARIABLE NAME	USAFA-8 LOAD (R)	USMA-7 LOAD (R)	USNA-15 LOAD (R)	USCGA-10 LOAD (R)	USMMA-4 LOAD (R)
LIFE GOAL OF HAVING ADMINISTRATIVE RESPONSIBILITY FOR THE WORK OF OTHERS	42 (-03)	39 (03)	37 (06)		57 (04)
LIFE GOAL OF HELPING OTHERS WHO ARE IN DIFFICULTY	63 (-06)	64 (-03)	58 (03)		67 (06)
LIFE GOAL OF PARTICIPATING IN A COMMUNITY ACTION PROGRAM	61 (-05)	60 (-07)	61 (07)	51 (-08)	
CHANCE YOU WILL BE ELECTED TO A STUDENT OFFICE		40 (03)	-35 (07)		
LIFE GOAL OF BEING SUCCESSFUL IN A BUSINESS OF MY OWN		43 (-03)	31 (08)		52 (04)
LIFE GOAL OF BECOMING AN AUTHORITY IN MY FIELD		45 (-03)		35 (03)	
LIFE GOAL OF INFLUENCING THE POLITICAL STRUCTURE				63 (03)	76 (06)
CHANCE YOU WILL BE SATISFIED WITH YOUR COLLEGE					34 (05)
LIFE GOAL OF DEVELOPING A MEANINGFUL PHILOSOPHY OF LIFE					53 (15)
LIFE GOAL OF BEING VERY WELL OFF FINANCIALLY					46 (05)
FACTOR VALIDITY	-083	-054	077	-039	111

49.

MATHEMATICAL ABILITY

VARIABLE NAME	USAFA-2 LOAD (R)	USMA- LOAD (R)	USNA-2 LOAD (R)	USCGA- LOAD (R)	USMMA-2 LOAD (R)
FREQUENCY WAS TUTORED BY ANOTHER STUDENT	-31 (07)		-31 (10)		
SAT VERBAL SCORE	37 (05)				
SAT MATH SCORE	83 (04)		85 (06)		74 (15)
COLLEGE ENTRANCE EXAM - ENGLISH	40 (05)		58 (-02)		
COLLEGE ENTRANCE EXAM - MATH	84 (04)		84 (07)		78 (17)
COMPOSITE RATING	65 (08)		81 (05)		57 (16)
WON A CERTIFICATE OF MERIT OR LETTER OF COMMENDATION IN THE NATIONAL MERIT PROGRAM			32 (-03)		
FREQUENCY TUTORED ANOTHER STUDENT			34 (08)		
AVERAGE GRADE IN SECONDARY SCHOOL			54 (04)		
ACADEMIC ABILITY AT THE TIME OF ENTRY					37 (07)
MATHEMATICAL ABILITY AT THE TIME OF ENTRY					67 (06)
FACTOR VALIDITY	032		061		134

50.

ACADEMIC ACHIEVEMENT

VARIABLE NAME	USAFA-19 LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-12 LOAD (R)	USMMA-15 LOAD (R)
MEMBER OF SCHOLASTIC HONOR SOCIETY WHILE IN HIGH SCHOOL	58 (05)			-58 (-03)	-66 (13)
ACADEMIC SCHOLARSHIP TURNED DOWN	36 (02)				
PERCEIVED ACADEMIC ABILITY AT THE TIME YOUR ENTERED THE ACADEMY	55 (03)			-36 (09)	-42 (08)

ACADEMIC ACHIEVEMENT (CONTINUED)

VARIABLE NAME	USAFA-19 LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-12 LOAD (R)	USMMA-15 LOAD (R)
AVERAGE GRADE IN SECONDARY SCHOOL	75 (10)			-74 (09)	-74 (06)
CHANCE YOU WILL GRADUATE WITH HONORS	43 (04)				
CHANCE YOU WILL BE ELECTED TO AN ACADEMIC HONOR SOCIETY	46 (05)				
CONVERTED HIGH SCHOOL RANK	73 (09)			-47 (12)	-83 (11)
COMPOSITE RATING	44 (08)				-58 (16)
FACTOR VALIDITY	102			-067	-090

51. ACADEMIC ABILITY

VARIABLE NAME	USAFA- LOAD (R)	USMA-4 LOAD (R)	USNA- LOAD (R)	USCGA-5 LOAD (R)	USMMA- LOAD (R)
SAT VERBAL SCORE		81 (03)		77 (11)	
SAT MATH SCORE		84 (09)		78 (03)	
COLLEGE ENTRANCE EXAM - ENGLISH		82 (08)		76 (03)	
COLLEGE ENTRANCE EXAM - MATH		83 (10)		82 (12)	
CONVERTED HIGH SCHOOL RANK				66 (12)	
COMPOSITE RATING				95 (05)	
FACTOR VALIDITY		104		024	

52. VERBAL ABILITY

VARIABLE NAME	USAFA-21 LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-29 LOAD (R)	USMMA-16 LOAD (R)
PERCEIVED WRITING ABILITY AT THE TIME OF ENTRY	40 (04)			43 (03)	
SAT VERBAL SCORE	62 (05)				80 (-09)
COLLEGE ENTRANCE EXAM - ENGLISH	58 (05)				65 (05)
COMPOSITE RATING	32 (08)				37 (16)
PARTICIPATION IN A STATE OR REGIONAL SPEECH OR DEBATE CONTEST WHILE IN HIGH SCHOOL				36 (-05)	
HAD POEMS, STORIES, ESSAYS, OR ARTICLES PUBLISHED WHILE IN HIGH SCHOOL				32 (-04)	
WAS VALEDICTORIAN OR SALUTATORIAN OF MY HIGH SCHOOL GRADUATING CLASS				31 (04)	
FACTOR VALIDITY	003			-011	-064

ATTACHMENT IX

53.

"STAR STATUS" (SCHOLARSHIPS TURNED DOWN)

Variable name	USAFA- Load (R)	USMA-15 Load (R)	USNA- Load (R)	USCGA-15 Load (R)	USMMA-36 Load (R)
Number of definite scholarship offers turned down to attend Academy		93 (-04)		-79 (07)	-62 (-06)
Athletic scholarship turned down		46 (-04)			-39 (-07)
Academic scholarship turned down		48 (04)		-53 (10)	
Military scholarship turned down		34 (05)		-38 (-03)	-35 (09)
Factor Validity		-023		067	-058

54.

BENEFITS FROM ATTENDING ACADEMY

Variable name	USAFA-9 Load (R)	USMA-14 Load (R)	USNA-21 Load (R)	USCGA-28 Load (R)	USMMA- Load (R)
Attended Academy because honor and prestige of an Academy appointment	47 (-06)		51 (-06)	57 (-10)	
Attended Academy because pay while attending Academy	50 (12)	42 (10)			
Attended Academy because opportunity for travel and adventure after graduation	38 (06)		36 (03)	35 (-10)	
Attended Academy because graduation offered the opportunity for long run financial security	59 (05)	40 (08)	48 (06)	32 (13)	
Attended Academy because tuition free education	56 (08)	48 (04)			
Effect of national economic conditions on staying	31 (13)	34 (14)	33 (10)		
Effect of belonging to an institution with a prestigious tradition on staying	31 (-05)	40 (03)			
Attended Academy because academic reputation of the Academy		32 (08)	33 (04)		
Attended Academy because graduation offered social prestige		47 (04)		63 (-06)	
Life goal of being very well-off financially			35 (04)		
Factor Validity	034	084	-007	-091	

55.

SOCIALLY ACCEPTABLE REASONS FOR ATTENDING

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-17 Load (R)	USCGA-4 Load (R)	USMMA-21 Load (R)
When first seriously considered attending Academy			20 (03)		
Attended Academy because emphasis on leadership training and physical development			-21 (04)		
Attended Academy because wanted to serve my country			-28 (06)	-52 (-04)	-66 (-05)
Effect of antimilitaristic attitudes of some people today on staying			-22 (07)		
Effect of adverse publicity about the military on staying			-20 (06)		

SOCIALLY ACCEPTABLE REASONS FOR ATTENDING (continued)

	USAFA-	USMA-	USNA-17	USCGA-4	USMMA-21
Variable name	Load (r)	Load (r)	Load (r)	Load (r)	Load (r)
Frequency did unassigned reading for a course			-23 (03)		
Frequency studied after taps			-22 (04)		
Attended Academy because wanted to serve my military obligation as an officer				-60 (-14)	-79 (-17)
Attended Academy because desire to fly				-48 (-13)	
Attended Academy because desire to go to sea				-51 (-15)	
Attended Academy because opportunity for travel and adventure after graduation				-32 (-10)	
Attended Academy because felt it would help me attain high rank in the service				-45 (-03)	-70 (-16)
Factor Validity			078	169	171

56. STATUS PRIOR TO ENTRY - HIGH SCHOOL VS. PREP SCHOOL OR UNIVERSITY ATTENDANCE PRIOR TO ENTRY

	USAFA-	USMA-5	USNA-19	USCGA-5	USMMA-5
Variable name	Load (r)	Load (r)	Load (r)	Load (r)	Load (r)
Attended high school year prior to entry to Academy		87 (-04)	84 (-04)		87 (05)
Attended an academy sponsored prep school year prior to entry to Academy		-61 (04)	-62 (05)		
Served on active military duty year prior to entry to Academy		-36 (-05)	-35 (03)		
Average grade in secondary school			34 (04)		
SAT Verbal score				77 (11)	
SAT Math score				78 (03)	
College Entrance Exam - English				76 (03)	
College Entrance Exam - Math				82 (12)	
Converted high school rank				66 (12)	
Composite rating				95 (05)	
Attended university, college, or junior college year prior to entry to Academy					-83 (-08)
Other activities year prior to entry to Academy					-30 (-07)
Post high school academic status					-82 (-12)
Factor Validity		-002	-02	024	065

57.

HIGH SCHOOL NON-ATHLETIC ACTIVITIES

Variable name	USAFA- Load (R)	USMA-10 Load (R)	USNA-3 Load (R)	USCGA- Load (R)	USMMA- Load (R)
Was elected officer of one or more high school student organizations		-37 (-04)	51 (-04)		
Composite rating		-62 (03)			
High school non-athletic activity score		-73 (-03)	66 (04)		
Recruited athletic designation		-58 (02)			
Participated in a state or regional speech or debate contest			31 (-04)		
Had a major part in a play or was a stage manager or director			37 (-07)		
Edited or worked on the school paper, yearbook, or literary magazine			39 (-06)		
Had poems, stories, essays, or articles published			41 (-05)		
Perceived writing ability at the time of entry			32 (-03)		
Factor Validity		047	-066		

58.

HIGHEST DEGREE PLANNED

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA-32 Load (R)
Highest degree planned					-36 (-06)
Number of students in high school graduating class					-21 (-08)
Perceived drive to achieve at the time of entry					24 (-07)
Perceived mechanical ability at the time of entry					29 (-04)
Classmates in your unit encouraged each other to give best effort					21 (-18)
Effect of obligation to perform enlisted service after resigning from the Academy on staying					26 (06)
Effect of increasing familiarity with the military or maritime service on staying					22 (13)
Frequency drank alcoholic beverages					27 (20)
The Federal government is not doing enough to control environmental pollution					21 (12)
Factor Validity					132

59.

FAMILY SERVICE/ACADEMY EXPERIENCE

Variable name	USAFA- Load (R)	USMA-9 Load (R)	USNA-13 Load (R)	USCGA- Load (R)	USMMA-26 Load (R)
Close friends, family, or relatives that attended an Academy or were career military or maritime personnel		-55 (10)	-55 (-03)		36 (05)
Father attended an Academy		-47 (06)	-41 (07)		
Father was career service		-53 (06)	-54 (03)		
Highest level of education of father		-38 (03)			

FAMILY SERVICE/ACADEMY EXPERIENCE (CONTINUED)

VARIABLE NAME	USAFA- LOAD (R)	USMA-9 LOAD (R)	USNA-13 LOAD (R)	USCGA- LOAD (R)	USMMA-26 LOAD (R)
BROTHER ATTENDED ACADEMY					64 (-03)
BROTHER WAS CAREER SERVICE					33 (-10)
HOW ADEQUATE WAS YOUR CONTACT WITH YOUR FAMILY AND FRIENDS DURING THE 1ST SUMMER					31 (-09)
FACTOR VALIDITY		-087	036		-091

60. COMMITMENT TO GRADUATION

VARIABLE NAME	USAFA-16 LOAD (R)	USMA-24 LOAD (R)	USNA-8 LOAD (R)	USCGA-14 30 LOAD (R)	USMMA- LOAD (R)
CHANCE YOU WILL GET MARRIED WHILE IN COLLEGE	39 (-05)	34 (-09)	41 (-06)		
CHANCE YOU WILL CHANGE CAREER CHOICE	45 (-03)		42 (-05)	70(07)-14	
CHANCE YOU WILL FAIL ONE OR MORE COURSES	37 (-05)		43 (-10)	30(-05)-14	
CHANCE YOU WILL DROP OUT PERMANENTLY	64 (-05)		69 (-08)	46(-09)-30 33(-09)-14	
CHANCE YOU WILL TRANSFER TO ANOTHER COLLEGE BEFORE GRADUATING	68 (-05)	49 (-03)	72 (-04)		
CHANCE YOU WILL GET MARRIED WITHIN A YEAR AFTER COLLEGE		44 (03)			
CHANCE YOU WILL DROP OUT OF COLLEGE TEMPORARILY		41 (-05)	64 (-06)		
FACTOR VALIDITY	-076	03	-074	061-14 -050-30	

61. PERCEIVED LEADERSHIP ABILITY AND CONFIDENCE

VARIABLE NAME	USAFA-3 LOAD (R)	USMA-2 LOAD (R)	USNA- LOAD (R)	USCGA-2 LOAD (R)	USMMA-7 LOAD (R)
PERCEIVED CHEERFULNESS AT TIME OF ENTRY	32 (-03)				
PERCEIVED LEADERSHIP ABILITY AT TIME OF ENTRY	52 (-03)	61 (-03)		76 (05)	65 (-10)
PERCEIVED ORIGINALITY AT TIME OF ENTRY	37 (-02)			51 (-04)	62 (-12)
PERCEIVED POPULARITY AT TIME OF ENTRY	40 (-02)			69 (08)	
STUDENT FELT BOTHERED THAT I HAD TOO LITTLE RESPONSIBILITY AND AUTHORITY DELEGATED TO ME BY SUPERIOR OFFICERS AND UPPERCLASSMEN - FIRST SUMMER	38 (07)				
STUDENT FELT BOTHERED THAT I HAD TOO LITTLE RESPONSIBILITY AND AUTHORITY DELEGATED TO ME BY SUPERIOR OFFICERS AND UPPERCLASSMEN - 4TH CLASS YEAR	38 (13)				
PERCEIVED TRUE LEADERSHIP ABILITY	46 (04)			61 (05)	52 (-17)
PERCEIVED ATHLETIC ABILITY AT TIME OF ENTRY		43 (-03)		52 (03)	
PERCEIVED DRIVE TO ACHIEVE AT TIME OF ENTRY		42 (-03)		51 (09)	59 (-07)
PERCEIVED POPULARITY WITH THE OPPOSITE SEX AT TIME OF ENTRY		60 (02)		66 (03)	
PERCEIVED SELF-CONFIDENCE (INTELLECTUAL) AT TIME OF ENTRY		47 (-04)			68 (-07)

PERCEIVED LEADERSHIP ABILITY AND CONFIDENCE (CONTINUED)

VARIABLE NAME	USAFA-3 LOAD (R)	USMA-2 LOAD (R)	USNA- LOAD (R)	USCGA-2 LOAD (R)	USMMA-7 LOAD (R)
PERCEIVED SELF CONFIDENCE (SOCIAL) AT TIME OF ENTRY		66 (-03)			70 (-13)
CLASSMATES IN YOUR UNIT LISTENED TO WHAT I SAID - 1ST SUMMER		34 (-05)			
PERCEIVED PUBLIC SPEAKING ABILITY AT TIME OF ENTRY				61 (03)	56 (-25)
PERCEIVED UNDERSTANDING OF OTHERS AT TIME OF ENTRY					42 (-05)
FACTOR VALIDITY	011	-004		060	-149

62.

PARENTS EDUCATIONAL LEVELS

VARIABLE NAME	USAFA-10 LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
HIGHEST LEVEL OF FORMAL EDUCATION OBTAINED BY FATHER	58 (05)				
HIGHEST LEVEL OF FORMAL EDUCATION OBTAINED BY MOTHER	50 (06)				
FACTOR VALIDITY	071			054	

63.

OPPORTUNITY FOR TRAVEL AND ADVENTURE AT SEA

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA-25 LOAD (R)
ATTENDED ACADEMY BECAUSE DESIRE TO GO TO SEA					-60 (20)
ATTENDED ACADEMY BECAUSE OPPORTUNITY FOR TRAVEL AND ADVENTURE AFTER GRADUATION					-49 (16)
SATISFACTION WITH OPPORTUNITY TO SLEEP					-30 (-06)
SATISFACTION WITH EMPHASIS ON TECHNICAL MATTERS IN THE CURRICULUM					-36 (17)
FACTOR VALIDITY					-181

64.

PRESTIGE OF ACADEMY APPOINTMENT AND GRADUATION

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA-37 LOAD (R)
ATTENDED ACADEMY BECAUSE HONOR AND PRESTIGE OF AN ACADEMY APPOINTMENT					51 (-04)
ATTENDED ACADEMY BECAUSE GRADUATION OFFERED SOCIAL PRESTIGE					59 (04)
FACTOR VALIDITY					-072

65. SATISFACTION WITH GROUP ATHLETICS

VARIABLE NAME	USAFA-13 LOAD (R)	USMA-13 LOAD (R)	USNA-12 LOAD (R)	USCGA-13 LOAD (R)	USMMA-24 LOAD (R)
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON CAMARADERIE	56 (07)	66 (-15)	65 (03)	73 (13)	57 (05)
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON CAMARADERIE	63 (08)	71 (-10)	66 (06)	72 (10)	
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON ATHLETICS		35 (-03)	34 (06)	39 (-03)	40 (06)
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON ATHLETICS			36 (06)		38 (-09)
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON CAMARADERIE			32 (03)		52 (08)
FACTOR VALIDITY	173	-154	086	118	062

66. UPPERCLASSMEN LEADERSHIP

VARIABLE NAME	USAFA-12 LOAD (R)	USMA-17 LOAD (R)	USNA-6 LOAD (R)	USCGA-9 LOAD (R)	USMMA-6 LOAD (R)
CLASSMATES IN YOUR UNIT LISTENED TO WHAT I SAID - 1ST SUMMER	34 (-08)				
CLASSMATES IN YOUR UNIT WERE EASY TO APPROACH - 1ST SUMMER	36 (-08)				
CLASSMATES IN YOUR UNIT MERITED MY CONFIDENCE AND TRUST - 1ST SUMMER	37 (-10)				
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP - 1ST SUMMER	41 (05)	43 (08)	-64 (05)		
UPPERCLASSMEN IN YOUR UNIT LISTENED TO MY PROBLEMS - 1ST SUMMER	69 (-03)		-54 (03)		
UPPERCLASSMEN IN YOUR UNIT WERE EASY TO APPROACH - 1ST SUMMER	64 (-10)	56 (-06)			
UPPERCLASSMEN IN YOUR UNIT HAD CONFIDENCE AND TRUST IN ME - 1ST SUMMER	61 (-05)	60 (-04)			39 (-10)
UPPERCLASSMEN IN YOUR UNIT WERE EASY TO APPROACH - 4TH CLASS YEAR	32 (04)	61 (04)		71 (03)	66 (03)
UPPERCLASSMEN IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 1ST SUMMER		39 (05)			44 (-10)
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP - 4TH CLASS YEAR		40 (08)	-62 (03)		56 (-16)
UPPERCLASSMEN IN YOUR UNIT HAD CONFIDENCE AND TRUST IN ME - 4TH CLASS YEAR		57 (05)		53 (05)	70 (-12)
CLASSMATES IN YOUR UNIT ENCOURAGED EACH OTHER TO GIVE BEST EFFORT - 1ST SUMMER			-39 (-04)		
CLASSMATES IN YOUR UNIT ENCOURAGED EACH OTHER TO GIVE BEST EFFORT - 4TH CLASS YEAR			-33 (-11)		
SATISFACTION WITH AVAILABILITY OF ADVICE, GUIDANCE AND FEEDBACK			-31 (05)	43 (-04)	
UPPERCLASSMEN IN YOUR UNIT LISTENED TO MY PROBLEMS - 4TH CLASS YEAR				73 (-03)	70 (-12)
UPPERCLASSMEN IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 4TH CLASS YEAR					48 (-14)
FACTOR VALIDITY	-063	002	044	005	-113

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67.

ACADEMIC PROGRAM

Variable name	USAFA-17 Load (R)	USMA-23 Load (R)	USNA-14 Load (R)	USCGA-22 1 Load (R)	USMMA-12 39 Load (R)
Effect of quality of academic instruction on staying	34 (06)	-33 (14)		-68(11)-1	-48(12)-12
Satisfaction with individual instruction available	40 (14)	-38 (07)	-44 (15)	60(16)-22	
Number of courses in which the instructor knew the subject matter well	32 (07)	-46 (07)		-50(-05)-1	-66(-16)-12
Number of courses in which individual instruction was given to those in need	39 (11)	-40 (08)	-44 (06)	53(03)-22	-53(13)-12
Satisfaction with intellectual and educational challenge in the academic curriculum		-36 (13)		-62(08)-1	-35(04)-39 -42(04)-12
Number of courses in which the instructor encouraged alot of class discussion		-34 (10)	-30 (09)		-43(13)-12
Number of courses in which the instructor stimulated my interest in the subject		-44 (09)	-48 (08)	-60(06)-1	-68(16)-12
Number of courses in which homework load was reasonable for course			-47 (-03)	31(06)-1	
Number of courses in which frequency of quizzes and tests were reasonable for course			-45 (-10)		-44(-05)-12
Number of courses in which there was fairness in grading			-55 (-10)		-56(-14)-12
Effect of frequent challenges to ability on staying					-31(08)-12
Effect of variety of courses offered on staying				-60(13)-1	-33(24)-39 -31(24)-12
Effect of quality of military or maritime training program on staying					-31(08)-12
Number of courses in which the instructor motivated me toward a career in the service				33(03)-1	-35(06)-12
Frequency asked an instructor for advice after class					-30(05)-12
Similarity of attitudes with students who recently graduated from the Academy					-31(09)-39
Satisfaction with opportunity to major in, concentrate in, or take subjects of interest				-60(14)-1	-66(16)-39
Satisfaction with emphasis on technical matters in the curriculum				-54(16)-1	-40(17)-39
Accuracy of expectations about academic program				44(10)-1	
Emotional feelings about Academy				34(-03)-1	
Effect of changing military career opportunities on staying				38(06)-1	
Effect of graduate school opportunities on staying				35(17)-1	
Effect of increasing familiarity with military on staying				31(-03)-1	
Effect of opportunity for personal growth and development on staying				43(08)-1	
Effect of changes in service personnel policies on staying				37(-05)-1	
Number of courses in which instructor encourages class discussion				47(05)-1	
Factor Validity	239	-090	032	164-1 054-22	-049-12 -177-39

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68. CLASSMATE LEADERSHIP

Variable name	USAFA-5 Load (R)	USMA-8 Load (R)	USNA- Load (R)	USCGA-6 25 Load (R)	USMMA-3 31 Load (R)
Classmates in your unit encouraged each other to give best effort - 1st summer	35 (-08)	-39 (-04)			
Classmates in your unit listened to what I said - 1st summer	34 (-08)	-31 (-05)			68(-05)-3
Classmates in your unit were easy to approach - 1st summer	32 (-08)			71(05)-6	63(-09)-3
Classmates in your unit merited my confidence and trust - 1st summer	51 (-10)			74(05)-6	79(-09)-3
Classmates in your unit encouraged each other to give best effort - 4th class year	53 (-13)	-66 (03)		73(-11)-25	-51(-18)-31 32(-18)-3
Classmates in your unit maintained high standards of performance - 4th class year	45 (-03)	-59 (03)		72(-07)-25	-73(-16)-31
Classmates in your unit listened to what I said - 4th class year	57 (-03)	-51 (03)		32(04)-25 43(04)-6	57(-09)-3
Classmates in your unit were easy to approach - 4th class year	61 (-04)			32(10)-25 64(10)-6	53(-04)-3
Classmates in your unit merited my confidence and trust - 4th class year	73 (-09)	-53 (03)		33(08)-25 63(08)-6	64(-11)-3
Upperclassmen in your unit maintained high standards of performance - 4th class year				30(03)-25	-32(-14)-31
4th class year desired less actual emphasis on comaraderie				-33(13)-25	
How many members of your current (or last) company or squadron do (or did) you consider to be your close friends	32 (-04)				
Factor Validity	-086	012		115-6 -141-25	-034-3 174-31

69. ROLE TENSION

Variable name	USAFA-4 Load (R)	USMA-3 Load (R)	USNA- Load (R)	USCGA-3 Load (R)	USMMA-18 Load (R)
Feeling of not knowing what Academy officials and upperclassmen expected of me - 1st summer	51 (02)			49 (10)	
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me - 1st summer	55 (09)	32 (05)			
Feeling of not knowing what my superior commissioned officers and upperclassmen thought of me or how they evaluated my performance - 1st summer	63 (06)	74 (06)		68 (14)	57 (-04)
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen - 1st summer	67 (02)			62 (08)	
Thinking that the amount of work I had to do might interfere with how well it got done - 1st summer	52 (05)			42 (06)	
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 1st summer	33 (07)				
Feeling of being unclear just what the scope and responsibilities of my role were - 1st summer	60 (05)			38 (06)	

ROLE TENSION (CONTINUED)

VARIABLE NAME	USAFA-4 LOAD (R)	USMA-3 LOAD (R)	USNA- LOAD (R)	USCGA-3 LOAD (R)	USMMA-18 LOAD (R)
FEELING THAT I WASN'T FULLY QUALIFIED TO HANDLE WHAT ACADEMY OFFICIALS AND UPPERCLASSMEN EXPECTED OF ME - 4TH CLASS YEAR	47 (-03)			37 (-10)	33 (-04)
FEELING OF NOT KNOWING WHAT MY SUPERIOR COMMISSIONED OFFICERS AND UPPERCLASSMEN THOUGHT OF ME OR HOW THEY EVALUATED MY PERFORMANCE - 4TH CLASS YEAR	52 (05)	70 (02)		67 (06)	66 (-10)
THINKING THAT I COULD NOT SATISFY THE CONFLICTING DEMANDS OF VARIOUS ACADEMY OFFICIALS AND UPPERCLASSMEN - 4TH CLASS YEAR	53 (-03)	47 (-08)		61 (-06)	51 (-05)
THINKING THAT THE AMOUNT OF WORK I HAD TO DO MIGHT INTERFERE WITH HOW WELL IT GOT DONE - 4TH CLASS YEAR	44 (03)				31 (-06)
FEELING OF BEING UNCLEAR JUST WHAT THE SCOPE AND RESPONSIBILITIES OF MY ROLE WERE - 4TH CLASS YEAR	42 (08)	42 (-05)		30 (-03)	
FEELING OF NOT KNOWING WHAT ACADEMY OFFICIALS AND UPPERCLASSMEN EXPECTED OF ME - 4TH CLASS YEAR		36 (-06)			
FACTOR VALIDITY	061	104		051	-156

70.

OVERALL EVALUATION OF ACADEMY

VARIABLE NAME	USAFA-1 LOAD (R)	USMA-1 LOAD (R)	USNA-1 LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
ATTENDED ACADEMY BECAUSE WANTED TO SERVE MY MILITARY OBLIGATION AS AN OFFICER	41 (-02)				
ATTENDED ACADEMY BECAUSE EMPHASIS ON LEADERSHIP TRAINING AND PHYSICAL DEVELOPMENT AT ACADEMY	55 (-03)		39 (04)		
ATTENDED ACADEMY BECAUSE WANTED TO SERVE MY COUNTRY	51 (-04)		41 (06)		
ACCURACY OF EXPECTATIONS ABOUT ACADEMIC PROGRAM			37 (12)		
ACCURACY OF EXPECTATIONS ABOUT STUDENT PRIVILEGES AND LEAVE					
WOULD ENCOURAGE A CLOSE FRIEND TO COME TO THE ACADEMY		-58 (10)	-58 (08)		
YOUR EMOTIONAL FEELINGS ABOUT THE ACADEMY		-67 (09)	-64 (13)		
FEELING THAT THE THINGS I HAD TO DO WERE AGAINST MY JUDGMENT - 4TH CLASS YEAR		-43 (-03)	-38 (-13)		
SATISFACTION WITH THE OPPORTUNITIES TO BE ALONE DURING THE 4TH CLASS YEAR			35 (11)		
SIMILARITIES OF ATTITUDES WITH STUDENTS AT THE ACADEMY			34 (03)		
SIMILARITIES OF ATTITUDES WITH STUDENTS WHO RECENTLY GRADUATED FROM THE ACADEMY			34 (08)		
SIMILARITIES OF ATTITUDES WITH STUDENTS YOU KNEW WHO RESIGNED	-46 (-05)	-44 (-08)	-33 (-10)		
SIMILARITIES OF ATTITUDES WITH OTHER STUDENTS YOU KNEW WHO WERE SEPARATED	-31 (-05)				
SIMILARITIES OF ATTITUDES WITH OFFICERS AT THE ACADEMY	40 (05)	43 (10)	46 (08)		

OVERALL EVALUATION OF ACADEMY (CONTINUED)

	USAFA-1	USMA-1	USNA-1	USCGA-	USMMA-
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
SIMILARITIES OF ATTITUDES WITH OTHER OFFICERS			36 (11)		
SIMILARITIES OF ATTITUDES WITH STUDENTS ATTENDING CIVILIAN COLLEGES	-39 (04)				
SIMILARITIES OF ATTITUDES WITH STUDENTS AT OTHER ACADEMIES			31 (11)		
ACCURACY OF EXPECTATIONS ABOUT OPPORTUNITY FOR SELF-IMPROVEMENT	33 (03)	32 (07)	39 (08)		
EFFECT OF CHANGING MILITARY OR MARITIME CAREERS ON STAYING		31 (08)	35 (11)		
EFFECT OF GRADUATE SCHOOL OPPORTUNITIES ON STAYING		37 (14)	40 (13)		
EFFECT OF INCREASING FAMILIARITY WITH THE MILITARY OR MARITIME SERVICE ON STAYING	50 (07)	-61 (10)	-56 (23)		
OF THOSE CLOSE FRIENDS IN YOUR COMPANY OR SQUADRON, HOW DO (OR DID) THEY GENERALLY FEEL ABOUT THE ACADEMY		-53 (04)	-49 (10)		
EFFECT OF OPPORTUNITY FOR PERSONAL GROWTH AND DEVELOPMENT ON STAYING	51 (07)	-58 (11)	-59 (15)		
EFFECT OF LIVING IN A COMPETITIVE ENVIRONMENT ON STAYING	53 (-06)		-51 (06)		
EFFECT OF BELONGING TO AN INSTITUTION WITH A PRESTIGIOUS TRADITION ON STAYING	44 (-04)	45 (03)			
EFFECT OF FREQUENT CHALLENGES TO ABILITY ON STAYING	62 (-04)	-52 (03)	-59 (10)		
EFFECT OF LEADING A DISCIPLINED WELL-STRUCTURED LIFE ON STAYING	63 (-04)		-60 (10)		
EFFECT OF VARIETY OF COURSES OFFERED ON STAYING	52 (02)	-50 (14)	-61 (16)		
EFFECT OF QUALITY OF ACADEMIC INSTRUCTION ON STAYING	44 (06)	-52 (14)	-64 (15)		
EFFECT OF QUALITY OF MILITARY OR MARITIME TRAINING PROGRAM ON STAYING	60 (-04)	-62 (11)	-62 (11)		
SATISFACTION WITH STUDENT INFLUENCES IN POLICY DECISIONS		44 (-03)			
SATISFACTION WITH OPPORTUNITY TO EXERCISE INITIATIVE	33 (04)	44 (04)	45 (08)		
SATISFACTION WITH AVAILABILITY OF ADVICE, GUIDANCE AND FEEDBACK		33 (04)	38 (05)		
SATISFACTION WITH OPPORTUNITY TO MAJOR IN, CONCENTRATE IN, OR TAKE SUBJECTS OF INTEREST	44 (12)	-48 (13)	-53 (19)		
SATISFACTION WITH CONTROL OVER YOUR PAY		34 (-05)			
SATISFACTION WITH INTELLECTUAL AND EDUCATIONAL CHALLENGE IN THE ACADEMIC CURRICULUM		-51 (13)	-60 (13)		
SATISFACTION WITH EMPHASIS ON TECHNICAL MATTERS IN THE CURRICULUM		46 (06)	-55 (06)		
SATISFACTION WITH INDIVIDUAL INSTRUCTION AVAILABLE		32 (07)			
SATISFACTION WITH LEAVE AND LIBERTY	31 (03)		31 (03)		
SATISFACTION WITH AVAILABILITY OF FREE TIME AT THE ACADEMY	32 (-03)	38 (05)	33 (07)		
SATISFACTION WITH LEADERSHIP QUALITIES OF OFFICERS AND STAFF		43 (09)	43 (03)		

OVERALL EVALUATION OF ACADEMY (CONTINUED)

	USAFA-1	USMA-1	USNA-1	USCGA-	USMMA-
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
NUMBER OF COURSES IN WHICH THE INSTRUCTOR ENCOURAGED A LOT OF CLASS DISCUSSION		30 (10)			
NUMBER OF COURSES IN WHICH THE INSTRUCTOR MOTIVATED ME TOWARD A CAREER IN THE SERVICE OR MARITIME INDUSTRY	34 (06)	40 (07)			
NUMBER OF COURSES IN WHICH THE INSTRUCTOR STIMULATED MY INTEREST IN THE SUBJECT		38 (09)	37 (08)		
4TH CLASS DESIRED LESS ACTUAL EMPHASIS ON OPPORTUNITY TO EXERCISE INDIVIDUAL INITIATIVE		-31 (-08)			
FACTOR VALIDITY	007	146	217		

71.

SATISFACTION WITH FREE TIME AND OPPORTUNITIES

	USAFA-18	USMA-18	USNA-10	USCGA-11	USMMA-
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
THINKING THAT THE AMOUNT OF WORK I HAD TO DO MIGHT INTERFERE WITH HOW WELL IT GOT DONE	31 (03)				
SATISFACTION WITH OPPORTUNITY TO SLEEP	-47 (-03)	-34 (-05)	-46 (-03)	43 (-04)	
SATISFACTION WITH LEAVE AND LIBERTY	-50 (03)		-54 (03)	61 (-06)	
SATISFACTION WITH AVAILABILITY OF FREE TIME AT THE ACADEMY	-66 (-03)	-45 (05)	-55 (07)		
SATISFACTION WITH OPPORTUNITY FOR FEMALE COMPANIONSHIP	-49 (-07)	-41 (-04)	-52 (-08)	52 (-05)	
SATISFACTION WITH STUDENT-CENTER TYPE FACILITIES	-35 (-10)	-31 (-07)		53 (-04)	
SATISFACTION WITH OFFICIAL EXPLANATION OF PROCEDURES AND PRACTICES	-37 (-06)				
NUMBER OF COURSES IN WHICH HOMEWORK WAS REASONABLE FOR COURSE	-30 (-03)				
SATISFACTION WITH CONTROL OVER YOUR PAY	-31 (-05)				
SATISFACTION WITH STUDENT INFLUENCE IN POLICY DECISIONS		-33 (-03)		33 (-03)	
FACTOR VALIDITY	077	112	106	-077	

72.

TYPICAL COLLEGE EXTRA-CURRICULAR ACTIVITIES

	USAFA-	USMA-19	USNA-7	USCGA-19	USMMA-8,28 24,35
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON ATHLETICS					38(-09)-24
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON COMARADERIE					57(05)-24
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON ATHLETICS					40(06)-24
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON COMARADERIE					52(08)-24
STUDENTS TEND TO CONSISTENTLY COMPLY WITH THE REGULATIONS					-32(-15)-8

TYPICAL COLLEGE EXTRA-CURRICULAR ACTIVITIES (CONTINUED)

VARIABLE NAME	USAFA- LOAD (R)	USMA-19 LOAD (R)	USNA-7 LOAD (R)	USCGA-19 LOAD (R)	USMMA-8,28 24,35 LOAD (R)
FREQUENCY CAME IN LATE TO CLASS			-32 (08)		62(17)-8
FREQUENCY ARRANGED A DATE FOR ANOTHER STUDENT			33 (04)	-59 (07)	-30(04)-28
FREQUENCY OVERSLEPT AND MISSED A SCHEDULED ACTIVITY					69(16)-8
FREQUENCY FAILED TO COMPLETE A HOMEWORK ASSIGNMENT ON TIME					36(-06)-8
FREQUENCY OPENLY DISAGREED WITH AN INSTRUCTOR IN CLASS		40 (06)			
FREQUENCY SMOKED CIGARETTES					31(-07)-8
FREQUENCY DRANK ALCOHOLIC BEVERAGES		42 (15)	-43 (16)		31(20)-8
FREQUENCY DISCUSSED SPORTS					37(-06)-35
FREQUENCY PARTICIPATED IN A PRANK		41 (09)	-33 (08)		34(10)-35 30(10)-8
FREQUENCY SKIPPED A CLASS					71(12)-8
FREQUENCY DATED		30 (11)	-43 (15)	-54 (16)	-50(12)-28
FREQUENCY WAS TUTORED BY ANOTHER STUDENT					65(05)-35
DISTANCE FROM COLLEGE TO PARENTS' HOME				41 (-08)	54(-05)-28
FACTOR VALIDITY		195	-251	-138	116-8 062-24 -076-28 221-35

73.

SATISFACTION WITH TRADITIONAL MILITARY TRAINING CUSTOMS

VARIABLE NAME	USAFA-20 LOAD (R)	USMA- LOAD (R)	USNA-18 LOAD (R)	USCGA-16 33 LOAD (R)	USMMA-10 38 LOAD (R)
NAMED TO AN ALL-CITY, ALL-COUNTY, ALL-STATE, OR ALL-AMERICAN HIGH SCHOOL ATHLETIC TEAM					-37(-14)-38
HELD A STEADY JOB WHILE ATTENDING HIGH SCHOOL					-37(04)-38
LIFE GOAL OF BEING VERY WELL-OFF FINANCIALLY					-44(-08)-38
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON PHYSICAL CONDITIONING				50(06)-33	
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON DRILLS AND CEREMONIES			37 (-04)	33(-07)-33 40(-07)-16	
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON LEARNING PROFESSIONAL KNOWLEDGE FOR RECITATION TO UPPERCLASSMEN	-50 (06)				
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON LEARNING OTHER INFORMATION FOR RECITATION TO UPPERCLASSMEN (SPORT SCORES, ETC.)	-34 (04)		43 (06)	58(06)-16	-40(-08)-10
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON INSPECTIONS	-53 (03)		50 (03)		
1ST SUMMER - DESIRED LESS ACTUAL EMPHASIS ON OPPORTUNITY TO EXERCISE INDIVIDUAL INITIATIVE				-31(06)-16	
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON LEARNING PROFESSIONAL KNOWLEDGE FOR RECITATION TO UPPER CLASSMEN	-33 (03)				-45(07)-10

SATISFACTION WITH TRADITIONAL MILITARY TRAINING CUSTOMS (CONTINUED)

Variable name	USAFA-20 Load (R)	USMA- Load (R)	USNA-18 Load (R)	USCGA-16 33 Load (R)	USMMA-10 38 Load (R)
4th class - desired less actual emphasis on learning other information for recitation to upperclassmen (sport scores, etc.)	-31 (11)		31 (05)		-74(07)-10
4th class - desired less actual emphasis on inspections	-40 (-03)		35 (-03)		
4th class - desired less actual emphasis on opportunity to exercise individual initiative					35(05)-10
Factor Validity	-031		-049	148-16 -007-33	-053-10 049-38

74. MILITARY OR ACADEMY REFERENCE GROUP IDENTIFICATION

Variable name	USAFA- Load (R)	USMA-20 Load (R)	USNA-11 Load (R)	USCGA-17 Load (R)	USMMA-1 Load (R)
Similarity of my attitudes with students at the Academy		47 (03)		51 (02)	
Similarity of my attitudes with students who recently graduated from the Academy		45 (08)	32 (08)		
Similarity of my attitudes with officers at the Academy		46 (10)	35 (08)	47 (11)	67 (-10)
Similarity of my attitudes with other officers		57 (07)	57 (11)	51 (06)	63 (-06)
Similarity of my attitudes with other military or maritime personnel		47 (03)	58 (07)		46 (-06)
Similarity of my attitudes with students at other Academies		39 (04)		44 (11)	
Factor Validity		052	072	153	-042

75. NON-ACADEMY AND NON-MILITARY REFERENCE GROUP IDENTIFICATION

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-22 Load (R)	USCGA-20 Load (R)	USMMA-34 Load (R)
Similarity of my attitudes with students you knew who resigned			50 (-10)	-53 (-13)	
Similarity of my attitudes with other students you knew who were separated			50 (-08)	-69 (-07)	
Similarity of my attitudes with students attending civilian colleges			56 (-05)		58 (-06)
Similarity of my attitudes with peers in home town			49 (-03)		61 (-06)
Satisfaction with availability of free time at the Academy					-30 (-07)
Factor Validity			-091	082	-102

76. TOO LITTLE RESPONSIBILITY AND AUTHORITY

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-9 Load (R)	USCGA-21 Load (R)	USMMA-13 Load (R)
Feeling that the things I had to do were against my judgment - 1st summer				-30 (02)	
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 1st summer			-81 (06)	-79 (12)	80 (12)
Feeling of being unclear just what the scope and responsibilities of my role were - 1st summer				-31 (06)	
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 4th class year			-86 (10)	-81 (17)	85 (13)
Feeling of being unclear just what the scope and responsibilities of my role were - 4th class year				-36 (-03)	
Satisfaction with student influences in policy decisions				-32 (-02)	
1st summer - desired less actual emphasis on opportunity to exercise individual initiative				-31 (07)	
Factor Validity			-095	-174	157

77. TASKS CONTRARY TO JUDGMENT

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-20 Load (R)	USCGA- Load (R)	USMMA-23 Load (R)
Emotional feeling about the Academy					-31 (-07)
Feeling that the things I had to do were against my judgment - 1st summer			-47 (-08)		81 (12)
Feeling that the things I had to do were against my judgment - 4th class year			-46 (-13)		82 (07)
Similarity of my attitudes with students at the Academy			41 (03)		
Similarity of my attitudes with students at other academies			37 (11)		
Factor Validity			-01		063

78. ROLE PERFORMANCE SLACKNESS

Variable name	USAFA-11 Load (R)	USMA-12 Load (R)	USNA- Load (R)	USCGA-34 Load (R)	USMMA- Load (R)
Perceived originality at the time of entry				36 (-04)	
In general, how did your last leadership rating compare with the leadership ratings of your classmates		-41 (04)			
Frequency came in late to class	44 (07)				
Frequency overslept and missed a scheduled activity				33 (04)	
Frequency failed to complete a homework assignment on time				42 (06)	

ROLE PERFORMANCE SLACKNESS (CONTINUED)

	USAFA-11	USMA-12	USNA-	USCGA-34	USMMA-
Variable name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
Frequency walked tours, served confinements; restricted or extra duty	58 (06)	58 (-08)			
Frequency received demerits	69 (12)	52 (05)			
Factor Validity	103	027		001	

79. SATISFACTION WITH EMPHASIS ON INITIATIVE

	USAFA-	USMA-22	USNA-	USCGA-	USMMA-
Variable name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
4th class - desired less actual emphasis on opportunity to exercise individual initiative		33 (-08)			
Factor Validity		-058			

80. PERCEIVED UNIFORMITY OR REGULATION COMPLIANCE AND APPLICATION

	USAFA-15	USMA-	USNA-	USCGA-27	USMMA-17
Variable name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
Classmates in your unit maintained high standards of performance - 1st summer					40 (06)
Upperclassmen in your unit maintained high standards of performance - 1st summer					31 (-10)
Student regulations tend to be applied uniformly	33 (-07)			-66 (-10)	53 (-07)
Disciplinary action tends to be consistent for the same infraction	35 (-06)			-55 (-04)	71 (-10)
Disciplinary action is appropriate to the infraction					38 (-11)
Students tend to consistently comply with the regulations				-48 (-14)	33 (-15)
Satisfaction with official explanations of procedures and practices				-32 (-06)	
Factor Validity	-087			129	-064

81. ROLE CONFLICT

	USAFA-	USMA-	USNA-5	USCGA-	USMMA-
Variable name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
Feeling of not knowing what my superior commissioned officers and upperclassmen thought of me or how they evaluated my performance - 1st summer			39 (03)		
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen - 1st summer			74 (-03)		
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me - 4th class year			47 (-08)		

ROLE CONFLICT (CONTINUED)

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA-5 LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
THINKING THAT I COULD NOT SATISFY THE CONFLICTING DEMANDS OF VARIOUS ACADEMY OFFICIALS AND UPPERCLASSMEN - 4TH CLASS YEAR			74 (-08)		
THINKING THAT THE AMOUNT OF WORK I HAD TO DO MIGHT INTERFERE WITH HOW WELL IT GOT DONE			47 (-09)		
FACTOR VALIDITY			-063		

82. OPPORTUNITY TO PLAY PREFERRED INTRAMURAL SPORT

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA-29 LOAD (R)
SATISFACTION WITH OPPORTUNITY TO PARTICIPATE IN INTRAMURAL SPORT OF CHOICE					50 (-04)
FACTOR VALIDITY					-038

83. SATISFACTION WITH FAMILY CONTACT FREQUENCY

VARIABLE NAME	USAFA- LOAD (R)	USMA-16 LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
HOW ADEQUATE WAS YOUR CONTACT (VISITS, LETTERS, TELEPHONE CALLS) WITH YOUR FAMILY AND FRIENDS DURING THE 1ST SUMMER		61 (-07)			
HOW ADEQUATE WAS YOUR CONTACT (VISITS, LETTERS, TELEPHONE CALLS) WITH YOUR FAMILY AND FRIENDS DURING THE 4TH CLASS		64 (-04)			
FACTOR VALIDITY		-090			

ATTACHMENT IX

NON-ACADEMY FACTORS

84. CHANGING EXTERNAL MILITARY OPPORTUNITIES

	USAFA-	USMA-	USNA-	USCGA-32	USMMA-19
Variable name	Load (r)	Load (r)	Load (r)	Load (r)	Load (r)
Effect of changing military or maritime career opportunities on staying				34 (06)	70 (14)
Effect of changing national economic conditions on staying					52 (09)
Effect of graduate school opportunities on staying					50 (17)
Effect of increasing familiarity with the military or maritime services on staying				30 (03)	50 (13)
Effect of frequent challenges to ability on staying					31 (08)
1st summer - desired less actual emphasis on athletics				-54 (04)	
Factor Validity				015	240

85. PUBLICITY ABOUT MILITARY

	USAFA-22	USMA-	USNA-	USCGA-35	USMMA-
Variable name	Load (r)	Load (r)	Load (r)	Load (r)	Load (r)
Effect of antimilitaristic attitudes of some people today on staying	33 (-02)				
Effect of adverse publicity about the military	31 (-04)			30 (-13)	
Similarity of my attitudes with students you knew who resigned	-299 (-05)				
Similarity of my attitudes with other students you knew who were separated	-298 (-06)				
Desired amount of emphasis on 4th class comaraderie	-237 (02)				
Frequency drank alcoholic beverages	201 (12)				
Factor Validity	106			-095	

86. DECREASED MILITARY HOSTILITIES

	USAFA-	USMA-	USNA-	USCGA-23	USMMA-27
Variable name	Load (r)	Load (r)	Load (r)	Load (r)	Load (r)
Attended Academy because pay while attending Academy				33 (10)	
Effect of end of U.S. involvement in Southeast Asia on staying				41 (-05)	61 (11)
Effect of national economic conditions on staying				36 (10)	
Effect of leading a disciplined, well-structured life on staying				-34 (04)	
Factor Validity				032	055

3RD CLASS

87. OVERALL MEASURED ACADEMIC ABILITY

VARIABLE NAME	USAFA-4 LOAD (R)	USMA-5 LOAD (R)	USNA-21 LOAD (R)	USCGA-13 LOAD (R)	USMMA- LOAD (R)
ATTENDED HIGH SCHOOL YEAR PRIOR TO ENTRY				38(093)	
MEMBER OF A SCHOLASTIC HONOR SOCIETY WHILE IN HIGH SCHOOL				31(177)	
WON A CERTIFICATE OF MERIT OR LETTER OF COMMENDATION IN THE NATIONAL MERIT PROGRAM	38(-052)		-40(069)		
ACADEMIC SCHOLARSHIP TURNED DOWN			-48(062)		
PERCEIVED ACADEMIC ABILITY AT TIME OF ENTRY		55(-094)			
PERCEIVED MATHEMATICAL ABILITY AT TIME OF ENTRY		76(-033)			
PERCEIVED MECHANICAL ABILITY AT TIME OF ENTRY		32(068)			
PERCEIVED WRITING ABILITY AT TIME OF ENTRY			-36(-048)		
FREQUENCY TUTORED ANOTHER STUDENT AT ACADEMY			-33(062)		
FREQUENCY WAS TUTORED BY ANOTHER STUDENT		-37(033)			
AGE ON DECEMBER 31 OF ENTRY YEAR				-32(-103)	
AVERAGE GRADE IN SECONDARY SCHOOL			-57(080)	48(230)	
CHANCE YOU WILL GRADUATE WITH HONORS			-44(070)		
SAT VERBAL SCORE	47(-073)		-52(041)		
SAT MATH SCORE	72(-046)	67(024)	-47(057)	30(-046)	
COLLEGE ENTRANCE EXAM ENGLISH	51(-078)				
COLLEGE ENTRANCE EXAM MATH	66(-036)	63(037)			
CONVERTED HIGH SCHOOL RANK			-58(074)	80(174)	
COMPOSITE RATING	86(-090)			78(112)	
HIGH SCHOOL ATHLETIC ACTIVITY SCORE			40(-033)		
FACTOR VALIDITY	074	-030	-124	138	

88. CHARACTERISTICS OF RECRUITED ATHLETES

VARIABLE NAME	USAFA-17 LOAD (R)	USMA-7 LOAD (R)	USNA-9 LOAD (R)	USCGA-7 LOAD (R)	USMMA- LOAD (R)
WON A VARSITY LETTER IN HIGH SCHOOL		46(-033)			
NAMED TO AN ALL-CITY, ALL-COUNTY, ALL-STATE, OR ALL-AMERICAN HIGH SCHOOL ATHLETIC TEAM		53(-047)	45(-035)	60(-039)	
NUMBER OF DEFINITE SCHOLARSHIP OFFERS TURNED DOWN TO ATTEND THE ACADEMY			34(085)		
ATHLETIC SCHOLARSHIP TURNED DOWN				54(-076)	
PERCEIVED ATHLETIC ABILITY AT TIME OF ENTRY		73(-050)		72(-126)	
PERCEIVED LEADERSHIP ABILITY AT TIME OF ENTRY		36(-047)			
PERCEIVED POPULARITY AT TIME OF ENTRY		46(-028)			
PERCEIVED WRITING ABILITY AT TIME OF ENTRY	45(-052)				

CHARACTERISTICS OF RECRUITED ATHLETES (CONTINUED)

Variable name	USAFA-17 Load (r)	USMA-7 Load (r)	USNA-9 Load (r)	USCGA-7 Load (r)	USMMA- Load (r)
Attended Academy because opportunity to play intercollegiate athletics		52(-052)		63(-064)	
Frequency played athletics in free time			49(070)		
Frequency discussed sports			53(032)		
SAT verbal score	51(-073)	-42(-039)			
College entrance exam - English	42(-078)				
High school athletic activity score	-48(-075)		45(-033)		
Recruited athletic designation	-38(-042)	39(-048)			
Physical aptitude exam		50(044)			
Factor Validity	016	-021	049	-095	

89. EXPRESSIVE ABILITY

Variable name	USAFA-2 Load (r)	USMA-3 Load (r)	USNA- Load (r)	USCGA-29 Load (r)	USMMA- Load (r)
Participated in a state or regional speech or debate contest		31(024)			
Edited or worked on the school paper, yearbook or literary magazine in high school				38(084)	
Perceived academic ability at time of entry		37(-094)			
Perceived cheerfulness at time of entry	42(052)				
Perceived drive to achieve at time of entry	49(079)	38(037)			
Perceived leadership ability at time of entry	66(023)	51(-047)			
Perceived originality at time of entry		57(-095)		73(045)	
Perceived popularity at time of entry	75(028)	37(-028)			
Perceived popularity with the opposite sex at time of entry	67(025)				
Perceived public speaking ability at time of entry	52(-045)	69(-034)			
Perceived self-confidence (intellectual) at time of entry	39(-026)	63(-054)		51(068)	
Perceived writing ability at time of entry		66(-079)		54(-129)	
High school athletic activity score	32(-075)				
Factor Validity	-029	-093		004	

90. GENERAL CONSERVATIVE ATTITUDE

Variable name	USAFA-6 Load (r)	USMA-6 Load (r)	USNA-20 Load (r)	USCGA-8 Load (r)	USMMA- Load (r)
Political conservatism at time of entry	-78(064)	79(053)	-66(091)	-85(125)	
Political leberalism at time of entry	78(-052)	-81(-074)	68(-054)	74(-098)	
Attended Academy because wanted to serve my country	-34(081)	30(064)			

GENERAL CONSERVATIVE ATTITUDE (CONTINUED)

	USAFA-6	USMA-6	USNA-20	USCGA-8	USMMA-
Variable name	Load (r)	Load (r)	Load (r)	Load (r)	Load (r)
Present political views	60(-029)	-51(-080)		43(-040)	
College officials have the right to ban persons with extreme views from speaking on campus	-37(-038)	34(036)			
Most college officials have been too lax in dealing with students protests on campus			-38(034)	-33(190)	
Marijuana should be legalized	41(-084)	-37(-049)			
The federal government is not doing enough to promote school desegregation		-38(-024)			
Factor Validity	-046	058	-019	-108	

91. ACCURACY OF EXPECTATIONS ABOUT ACADEMY ENVIRONMENT

	USAFA-21	USMA-17	USNA-22	USCGA-14	USMMA-
Variable name	Load (r)	Load (r)	Load (r)	Load (r)	Load (r)
Accuracy of expectations about first summer	38(-055)			72(068)	
Accuracy of expectations about 4th class system		51(079)	49(033)	80(075)	
Accuracy of expectations about academic program		36(044)			
Accuracy of expectations about regementation	49(-072)				
Accuracy of expectations about physical education training		34(-033)	35(-075)		
Accuracy of expectations about opportunity for self-improvement			40(141)		
Accuracy of expectations about demands on my time	47(-071)	54(050)	55(071)		
Accuracy of expectations about student privileges and leave	49(-164)	57(-118)	47(-041)		
Factor Validity	-162	-060	027	067	

92. BENEFITS GAINED FROM ATTENDING THE ACADEMY

	USAFA-20	USMA-13	USNA-19	USCGA-	USMMA-
Variable name	Load (r)	Load (r)	Load (r)	Load (r)	Load (r)
Attended Academy because of honor and prestige of an Academy appointment	-53(-029)	-42(-066)			
Attended Academy because academic reputation of the Academy	-36(-042)				
Attended Academy because graduation offered social prestige	-50(051)				
Attended Academy because opportunity for travel and adventure after graduation		-32(036)	32(072)		
Attended Academy because graduation offered the opportunity for long run financial security	-34(086)	-43(038)	43(061)		
Attended Academy because tuition free education		-38(-036)			
Effect of national economic conditions on staying			38(223)		
Effect of belonging to an institution with a prestigious tradition		-40(-039)			
Factor Validity	-073	041	180		

93.

BENEVOLENCE AND SOCIO-POLITICAL INFLUENCE

	USAFA-10	USMA-14	USNA-	USCGA-30 31	USMMA-
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
PERCEIVED POPULARITY AT TIME OF ENTRY				38(-038)-30	
PERCEIVED UNDERSTANDING OF OTHERS AT TIME OF ENTRY				50(-054)-30	
HOW DO YOU PERSONALLY FEEL YOUR TRUE LEADERSHIP ABILITY COMPARES WITH THE LEADERSHIP ABILITY OF YOUR CLASSMATES				32(-112)-30	
FREQUENCY VISITED NEARBY COMMUNITY OR LARGE CITY				24(-203)-31	
LIFE GOAL OF KEEPING UP TO DATA ON POLITICAL AFFAIRS	-53(-040)	-46(087)		-34(049)-31 71(062)-30	
LIFE GOAL OF BEING SUCCESSFUL IN MY OWN BUSINESS				-22(-152)-31	
LIFE GOAL OF DEVELOPING A MEANINGFUL PHILOSOPHY OF LIFE	-41(-022)	-50(-056)			
LIFE GOAL OF INFLUENCING THE POLITICAL STRUCTURE	-65(-049)			50(049)-30	
LIFE GOAL OF INFLUENCING SOCIAL VALUES	-61(-053)				
LIFE GOAL OF HAVING ADMINISTRATIVE RESPONSIBILITY	-32(024)				
LIFE GOAL OF PARTICIPATING IN A COMMUNITY ACTION PROGRAM	-52(058)	-60(-025)		-66(094)-31	
LIFE GOAL OF HELPING OTHERS WHO ARE IN DIFFICULTY		-54(-036)			
FACTOR VALIDITY	057	073		004-30 -060-31	

94.

COMMITMENT TO GRADUATION

	USAFA-9	USMA-10	USNA-8	USCGA-11 26	USMMA-
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
CHANCE YOU WILL GET MARRIED WHILE IN COLLEGE			39(-135)	41(-142)-11	
CHANCE YOU WILL CHANGE MAJOR FIELD	39(-052)			73(-064)-26	
CHANCE YOU WILL CHANGE CAREER CHOICE	59(-058)	37(-057)	40(-056)	65(-044)-26	
CHANCE YOU WILL FAIL ONE OR MORE COURSES	42(-038)	37(-116)		38(-114)-11	
CHANCE YOU WILL BE SATISFIED WITH YOUR COLLEGE	-47(048)	-37(041)	-42(139)	-49(079)-11	
CHANCE YOU WILL DROP OUT OF COLLEGE TEMPORARILY		53(-096)	65(-116)	51(-110)-11	
CHANCE YOU WILL DROP OUT PERMANENTLY	60(-060)	68(058)	71(-122)	75(-157)-11	
CHANCE YOU WILL TRANSFER TO ANOTHER COLLEGE BEFORE GRADUATING	65(-092)	73(-087)	79(-180)	79(-137)-11	
FACTOR VALIDITY	-107	-099	-158	-091-11 036-26	

95.

CONVERTED HIGH SCHOOL RANK

	USAFA-	USMA-19	USNA-	USCGA-	USMMA
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
AGE ON DECEMBER 31 OF ENTRY YEAR		39(-049)			
AVERAGE GRADE IN SECONDARY SCHOOL		-49(055)			
CONVERTED HIGH SCHOOL RANK		48(-023)			
FACTOR VALIDITY		020			

96.

COMMITMENT TO CAREER

Variable name	USAFA- Load (R)	USMA-26 Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA- Load (R)
When did you first seriously consider attending the Academy		-24(-071)			
Attended Academy because wanted to serve my country		28(064)			
Effect of quality of military or maritime training program on staying		25(110)			
Number of courses in which the instructor motivated me toward a career in the service or maritime industry		299(108)			
Chance you will change major field		-32(-076)			
Chance you will change career choice		-40(-057)			
Factor Validity		-027			

97.

STATUS PRIOR TO ENTRY - HIGH SCHOOL VS PREP SCHOOL OR COLLEGE

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-3 Load (R)	USCGA- Load (R)	USMMA- Load (R)
Attended high school year prior to entry to Academy			90 (-05)		
Attended an Academy sponsored prep school year prior to entry to Academy			-56 (03)		
Attended a university, college, or junior college year prior to entry to Academy			-36 (05)		
Factor Validity			-057		

98.

PARENTS SOCIO-ECONOMIC STATUS

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-11 Load (R)	USCGA- Load (R)	USMMA- Load (R)
Father attended an Academy			31(036)		
Highest level of formal education obtained by father			44(-038)		
Estimated parental income			289(-031)		
Factor Validity			-098		

99.

PERSONAL GOALS

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-18 Load (R)	USCGA-40 Load (R)	USMMA- Load (R)
Perceived drive to achieve at time of entry			-36(048)		
Attended Academy because honor and prestige of an Academy appointment			-31(-115)	45(039)	
Attended Academy because academic reputation of the Academy			-34(-071)		

PERSONAL GOALS (continued)

Variable name	USAFA- Load (r)	USMA- Load (r)	USNA-18 Load (r)	USCGA-40 Load (r)	USMMA- Load (r)
Attended Academy because wanted to serve my military obligation as an officer				58(106)	
Attended Academy because emphasis on leadership training and physical development at Academy				57(042)	
Attended Academy because wanted to serve my country				56(156)	
Effect of antimilitaristic attitudes of some people today on staying				31(062)	
Of the close friends in your company or squadron how do (or did) they generally feel about the Academy				31(205)	
Effect of leading a disciplined well-structured life on staying				40(176)	
Chance you will be elected to a student office			-31(037)		
Chance of becoming accomplished in one of the performing arts			-40(107)		
Chance of influencing social values			-43(-075)		
Chance of becoming an authority in my field			-36(-033)		
4th class - desired less actual emphasis on drills and ceremonies				36(-039)	
Factor Validity			196	027	

100. EXPECTATION OF ACADEMIC SUCCESS

Variable name	USAFA- Load (r)	USMA- Load (r)	USNA- Load (r)	USCGA-5 Load (r)	USMMA- Load (r)
Average grade in secondary school				35(230)	
Chance you will graduate with honors				71(159)	
Chance you will be elected to an academic honor society				69(133)	
Chance you will be more successful after graduation than most students attending this college				42(088)	
Factor Validity				168	

101. FAMILY ACADEMY/SERVICE EXPERIENCE

Variable name	USAFA- Load (r)	USMA- Load (r)	USNA- Load (r)	USCGA-18 Load (r)	USMMA- Load (r)
Number of close friends, family or relatives that attended an Academy or were career military or maritime				74(047)	
Father was career service				79(045)	
Factor Validity				019	

ATTACHMENT IX

102. NUMBER OF SCHOLARSHIP OFFERS

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA-23 Load (R)	USMMA- Load (R)
Number of definite scholarship offers turned down to attend Academy				-88(074)	
Athletic scholarship turned down				-41(-076)	
Academic scholarship turned down				-67(105)	
Factor Validity				-091	

103. FINANCIAL SUCCESS ASPIRATIONS

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA-33 Load (R)	USMMA- Load (R)
Being successful in my own business				-39(-152)	
Being very well-off financially				-64(-102)	
Factor Validity				044	

104. MATH ABILITY

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA-35 Load (R)	USMMA- Load (R)
Do you have any concern about your ability to finance your college education				37(043)	
SAT math score				-63(-046)	
Composite rating				-29(112)	
Factor Validity				-028	

105. SATISFACTION WITH GROUP ATHLETICS

Variable name	USAFA-12 Load (R)	USMA-12 Load (R)	USNA-16 Load (R)	USCGA-22 Load (R)	USMMA- Load (R)
Frequency discussed politics				21(080)	
Frequency drank alcoholic beverages				25(169)	
Students from disadvantaged social backgrounds should be given preferential treatment in college admissions				-23(042)	
1st summer - desired less actual emphasis on physical conditioning	-33(082)	53(101)			
1st summer - desired less actual emphasis on athletics		52(038)	-34(051)		
1st summer - desired less actual emphasis on comaraderie	-64(108)		-69(044)		
4th class - desired less actual emphasis on physical conditioning	-77(141)	48(101)	-68(099)		
4th class - desired less actual emphasis on athletics	-41(124)	48(077)	-35(091)	-60(-068)	
4th class - desired less actual emphasis on comaraderie				-23(046)	
Factor Validity	-168	083	-119	-037	

106. SATISFACTION WITH MILITARY TRAINING EXERCISES

Variable name	USAFA-15 Load (R)	USMA-15 Load (R)	USNA-24 Load (R)	USCGA-16 37 Load (R)	USMMA- Load (R)
Emotional feelings about the Academy				31(130)-16	
1st summer - desired less actual emphasis on drills and ceremonies	-53(-059)	43(042)		65(-043)-16	
1st summer - desired less actual emphasis on learning professional knowledge	-54(024)	43(153)		-32(090)-37 56(090)-16	
1st summer - desired less actual emphasis on learning other information for recitation (sport scores, etc.)		42(153)	-50(189)	65(155)-16	
1st summer - desired less actual emphasis on inspections	-61(-038)			72(043)-16	
1st summer - desired less actual emphasis on opportunity to exercise individual initiative	47(034)				
4th class - desired less actual emphasis on drills and ceremonies		45(090)		43(-039)-16	
4th class - desired less actual emphasis on learning professional knowledge for recitation		46(184)		-63(119)-37	
4th class - desired less actual emphasis on learning other information for recitation		52(139)	-44(110)	-37(041)-37 37(041)-16	
4th class - desired less actual emphasis on inspections		51(075)		46(085)-16	
Factor Validity	006	083	-220	000-16 -136-37	

107.

SATISFACTION WITH ACADEMIC PROGRAM

	USAFA-8	USMA-1	USNA-7	USCGA-9	USMMA-
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
ACCURACY OF EXPECTATIONS ABOUT ACADEMIC PROGRAM	-36(-036)	32(044)	42(060)	67(169)	
EMOTIONAL FEELINGS ABOUT THE ACADEMY		30(107)			
EFFECT OF GRADUATE SCHOOL OPPORTUNITIES ON STAYING			35(253)	36(304)	
EFFECT OF CHANGES IN SERVICE PERSONNEL POLICIES ON STAYING				40(252)	
EFFECT OF INCREASING FAMILIARITY WITH THE MILITARY OR MARITIME SERVICE ON STAYING		32(267)		48(342)	
OF THOSE CLOSE FRIENDS IN YOUR COMPANY OR SQUADRON, HOW DO (OR DID) THEY GENERALLY FEEL ABOUT THE ACADEMY				30(205)	
SIMILARITY OF MY ATTITUDES WITH STUDENTS YOU KNEW WHO RESIGNED				-37(-246)	
SIMILARITY OF MY ATTITUDES WITH OTHER STUDENTS YOU KNEW WHO WERE SEPARATED				-32(-074)	
EFFECT OF OPPORTUNITY FOR PERSONAL GROWTH AND DEVELOPMENT ON STAYING		35(206)	32(271)	30(202)	
EFFECT OF VARIETY OF COURSES OFFERED ON STAYING	-57(168)	49(212)	62(207)	68(209)	
EFFECT OF QUALITY OF ACADEMIC INSTRUCTION ON STAYING	-63(065)	67(196)	70(150)	60(166)	
EFFECT OF QUALITY OF MILITARY OF MARITIME TRAINING PROGRAM ON STAYING		37(110)		34(090)	
SATISFACTION WITH OPPORTUNITY TO EXERCISE INITIATIVE		32(156)			
SATISFACTION WITH AVAILABILITY OF ADVICE, GUIDANCE AND FEEDBACK		34(084)			
SATISFACTION WITH OPPORTUNITY TO MAJOR IN, CONCENTRATE IN, OR TAKE SUBJECTS OF INTEREST	-49(208)	45(173)	50(165)	62(128)	
SATISFACTION WITH INTELLECTUAL AND EDUCATIONAL CHALLENGE IN THE ACADEMIC CURRICULUM	-59(-025)	61(125)	62(077)		
SATISFACTION WITH EMPHASIS ON TECHNICAL MATTERS IN THE CURRICULUM		46(084)	51(103)	40(-056)	
EFFECT OF FREQUENT CHALLENGES TO ABILITY ON STAYING			31(053)		
SATISFACTION WITH INDIVIDUAL INSTRUCTION AVAILABLE		46(132)			
SATISFACTION WITH AVAILABILITY OF FREE TIME AT THE ACADEMY		32(046)			
SATISFACTION WITH LEADERSHIP QUALITIES OF OFFICERS AND STAFF		38(052)			
NUMBER OF COURSES IN WHICH HOMEWORK LOAD WAS REASONABLE FOR COURSE		39(056)			
NUMBER OF COURSES IN WHICH THE INSTRUCTOR ENCOURAGED A LOT OF CLASS DISCUSSION	-30(082)	47(170)			
NUMBER OF COURSES IN WHICH THE INSTRUCTOR MOTIVATED ME TOWARD A CAREER IN THE SERVICE OR MARITIME INDUSTRY	-36(141)	44(108)			
NUMBER OF COURSES IN WHICH FREQUENCY OF QUIZZES AND TESTS WAS REASONABLE FOR COURSE	-32(117)	44(-114)			
NUMBER OF COURSES IN WHICH THERE WAS FAIRNESS IN GRADING		45(-144)			

SATISFACTION WITH ACADEMIC PROGRAM (continued)

	USAFA-8	USMA-1	USNA-7	USCGA-9	USMMA-
Variable name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
Number of courses in which the instructor knew the subject matter well		52(028)			
Number of courses in which the instructor stimulated my interest in the subject		53(062)	46(078)	37(118)	
Number of courses in which individual instruction was given to those in need		36(088)			
Frequency asked an instructor for advice after class	-31(098)	34(090)			
Factor Validity	-185	165	190	286	

108. PERCEIVED UNIFORMITY OF REGULATION COMPLIANCE AND APPLICATION

	USAFA-27	USMA-25	USNA-23	USCGA-6	USMMA-
Variable name	Load (R)	Load (R)	Load (R)	Load (R)	Load (R)
Feeling of not knowing what Academy officials and upperclassmen expected of me - 3rd class year				30(154)	
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 3rd class year			-34(124)	41(178)	
Being unclear just what the scope and responsibilities of my role were - 3rd class year			-35(156)	49(247)	
Upperclassmen in your unit maintained high standards of performance - 4th class year	22(-081)		32(078)		
Upperclassmen in your unit maintained high standards of performance - 3rd class year			32(061)		
Student regulations tend to be applied uniformly	32(-113)	-47(-094)	47(-058)	-70(-322)	
Disciplinary action tends to be consistent for the same infraction	29(-100)	-48(-072)	47(-087)	-63(-266)	
Disciplinary action is appropriate to the infraction				-36(-086)	
Students tend to consistently comply with the regulations	21(-054)		31(-095)	-39(-186)	
Satisfaction with selection of student chain-of-command				-38(112)	
Satisfaction with student influence in policy decisions				-45(-140)	
Satisfaction with availability of advice, guidance and feedback		-33(084)			
Satisfaction with leave and liberty	-27(-029)				
Satisfaction with availability of free time at the Academy	-28(-168)				
Satisfaction with opportunity for female companionship	-27(-022)				
Satisfaction with student-center-type facilities				-41(-326)	
Satisfaction with official explanations of procedures and practices				-58(-268)	
Satisfaction with leadership qualities of officers and staff		-34(052)		-49(-114)	
Factor Validity	-073	208	-121	411	

ATTACHMENT IX

109.

TASK OVERLOAD

Variable name	USAFA-23 Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA-34 Load (R)	USMMA- Load (R)
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me - 1st summer	67(100)				
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen - 1st summer				-83(-042)	
Thinking that the amount of work I had to do might interfere with how well it got done - 1st summer				-39(048)	
Being unclear just what the scope and responsibilities of my role were - 1st summer				-47(-039)	
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me - 4th class year	76(072)				
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen - 4th class year	39(024)			67(-099)	
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me - 3rd class year	58(102)				
Factor Validity	032			101	

110.

CLASSMATE LEADERSHIP GOAL EMPHASIS

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-12 Load (R)	USCGA- Load (R)	USMMA- Load (R)
Classmates in your unit encouraged each other to give best effort - 1st summer			67(040)		
Classmates in your unit maintained high standards of performance - 1st summer			74(075)		
Classmates in your unit encouraged each other to give best effort - 4th class year			66(042)		
Classmates in your unit maintained high standards of performance - 4th class year			68(056)		
Upperclassmen in your unit maintained high standards of performance - 1st summer			30(099)		
Factor Validity			034		

111.

CLASSMATE LEADERSHIP - SUPPORTIVENESS

Variable name	USAFA-5 Load (R)	USMA-20 Load (R)	USNA- Load (R)	USCGA-10 Load (R)	USMMA- Load (R)
Classmates in your unit encouraged each other to give best effort - 1st summer		-42(036)		-48(-075)	
Classmates in your unit maintained high standards of performance - 1st summer		-33(074)			
Classmates in your unit were easy to approach - 1st summer	46(035)	-64(-040)		-76(-161)	
Classmates in your unit merited my confidence and trust - 1st summer	67(023)	-60(-042)		-60(-063)	

CLASSMATE LEADERSHIP - SUPPORTIVENESS (continued)

Variable name	USAFA-5 Load (r)	USMA-20 Load (r)	USNA- Load (r)	USCGA- Load (r)	USMMA- Load (r)
Classmates in your unit listened to what I said - 4th class year	46(-081)	-60(-040)			
Classmates in your unit were easy to approach - 4th class year		-72(-050)		-70(-063)	
Classmates in your unit merited my confidence and trust - 4th class year	71(031)				
Classmates in your unit listened to what I said - 3rd class year		-53(-120)			
Classmates in your unit were easy to approach - 3rd class year				-60(-117)	
Classmates in your unit merited my confidence and trust - 3rd class year	33(099)	-49(086)			
Upperclassmen in your unit had confidence and trust in me - 4th class year	31(022)				
Factor Validity	-025	124		100	

113. UPPERCLASSMEN LEADERSHIP SUPPORTIVENESS

Variable name	USAFA-13 Load (r)	USMA-8 Load (r)	USNA-2 Load (r)	USCGA- Load (r)	USMMA- Load (r)
Upperclassmen in your unit gave special attention to those who needed help - 1st summer	33(116)		56(128)		
Upperclassmen in your unit maintained high standards of performance - 1st summer			44(099)		
Upperclassmen in your unit listened to my problems - 1st summer	60(042)	68(093)	73(131)		
Upperclassmen in your unit were easy to approach - 1st summer	67(-022)	68(068)	66(075)		
Upperclassmen in your unit had confidence and trust in me - 1st summer	59(025)	50(085)	67(086)		
Upperclassmen in your unit gave special attention to those who needed help - 4th class year	35(047)	37(114)	54(145)		
Upperclassmen in your unit maintained high standards of performance - 4th class year		299(052)	45(078)		

UPPERCLASSMEN LEADERSHIP SUPPORTIVENESS (CONTINUED)

VARIABLE NAME	USAFA-13 LOAD (R)	USMA-8 LOAD (R)	USNA-2 LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
UPPERCLASSMEN IN YOUR UNIT LISTENED TO MY PROBLEMS - 4TH CLASS YEAR		79(050)	72(092)		
UPPERCLASSMEN IN YOUR UNIT WERE EASY TO APPROACH - 4TH CLASS YEAR	65(030)	78(048)	68(082)		
UPPERCLASSMEN IN YOUR UNIT HAD CONFIDENCE AND TRUST IN ME - 4TH CLASS YEAR	52(022)	53(049)	66(085)		
UPPERCLASSMEN IN YOUR UNIT LISTENED TO MY PROBLEMS - 3RD CLASS YEAR		58(-058)	38(055)		
UPPERCLASSMEN IN YOUR UNIT WERE EASY TO APPROACH - 3RD CLASS YEAR		51(025)			
UPPERCLASSMEN IN YOUR UNIT HAD CONFIDENCE AND TRUST IN ME - 3RD CLASS YEAR			31(100)		
FACTOR VALIDITY -	039	055	132		

114. UPPERCLASSMEN/CLASSMATE LEADERSHIP GOAL EMPHASIS

VARIABLE NAME	USAFA-22 LOAD (R)	USMA-2 LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
CLASSMATES IN YOUR UNIT ENCOURAGED EACH OTHER TO GIVE BEST EFFORT - 1ST SUMMER	62(044)	41(036)			
CLASSMATES IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 1ST SUMMER	59(068)	61(074)			
CLASSMATES IN YOUR UNIT ENCOURAGED EACH OTHER TO GIVE BEST EFFORT - 4TH CLASS YEAR	39(049)				
CLASSMATES IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 4TH CLASS YEAR		50(070)			
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP - 1ST SUMMER	51(116)	62(163)			
UPPERCLASSMEN IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 1ST SUMMER	52(066)	59(162)			
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP - 4TH CLASS YEAR	44(047)	53(114)			
UPPERCLASSMEN IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 4TH CLASS YEAR		40(052)			
FACTOR VALIDITY	091	170			

115. UPPERCLASSMEN/CLASSMATE LEADERSHIP SUPPORTIVENESS

VARIABLE NAME	USAFA- - LOAD (R)	USMA- LOAD (R)	USNA-14 LOAD (R)	USCGA-2 LOAD (R)	USMMA- LOAD (R)
CLASSMATES IN YOUR UNIT LISTENED TO WHAT I SAID - 4TH CLASS YEAR			51(-061)		
CLASSMATES IN YOUR UNIT LISTENED TO WHAT I SAID - 3RD CLASS YEAR			65(-057)		
CLASSMATES IN YOUR UNIT WERE EASY TO APPROACH - 3RD CLASS YEAR				35(-117)	

UPPERCLASSMEN/CLASSMATE LEADERSHIP SUPPORTIVENESS (CONTINUED)

	USAFA-	USMA-	USNA-14	USCGA-2	USMMA-
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
CLASSMATES IN YOUR UNIT MERITED MY CONFIDENCE AND TRUST - 3RD CLASS YEAR			45(056)		
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP - 4TH CLASS YEAR				31(150)	
UPPERCLASSMEN IN YOUR UNIT LISTENED TO MY PROBLEMS - 4TH CLASS YEAR				39(-081)	
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP - 3RD CLASS YEAR				58(-041)	
UPPERCLASSMEN IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 3RD CLASS YEAR				51(-097)	
UPPERCLASSMEN IN YOUR UNIT LISTENED TO MY PROBLEMS - 3RD CLASS YEAR			31(055)	75(-096)	
UPPERCLASSMEN IN YOUR UNIT WERE EASY TO APPROACH - 3RD CLASS YEAR			32(058)	61(-069)	
UPPERCLASSMEN IN YOUR UNIT HAD CONFIDENCE AND TRUST IN ME - 3RD CLASS YEAR			59(100)		
IN GENERAL, HOW DID YOUR LAST LEADERSHIP RATING COMPARE WITH THE LEADERSHIP RATINGS OF YOUR CLASSMATES			40(055)		
SATISFACTION WITH SELECTION OF STUDENT CHAIN-OF-COMMAND				33(-112)	
FACTOR VALIDITY			-062	-058	

116. UPPERCLASSMEN/CLASSMATE LEADERSHIP - GOAL EMPHASIS AND SUPPORT

	USAFA-7	USMA-	USNA-	USCGA-	USMMA-
VARIABLE NAME	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)	LOAD (R)
CLASSMATES IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 3RD CLASS YEAR	52(042)				
CLASSMATES IN YOUR UNIT LISTENED TO WHAT I SAID - 3RD CLASS YEAR	47(-069)				
CLASSMATES IN YOUR UNIT MERITED MY CONFIDENCE AND TRUST - 3RD CLASS YEAR	47(099)				
UPPERCLASSMEN IN YOUR UNIT GAVE SPECIAL ATTENTION TO THOSE WHO NEEDED HELP - 3RD CLASS YEAR	56(-053)				
UPPERCLASSMEN IN YOUR UNIT MAINTAINED HIGH STANDARDS OF PERFORMANCE - 3RD CLASS YEAR	64(-025)				
UPPERCLASSMEN IN YOUR UNIT LISTENED TO MY PROBLEMS - 3RD CLASS YEAR	56(-070)				
UPPERCLASSMEN IN YOUR UNIT HAD CONFIDENCE AND TRUST IN ME - 3RD CLASS YEAR	52(044)				
FACTOR VALIDITY	-023				

118. ROLE PERFORMANCE SLACKNESS

VARIABLE NAME	USAFA-18 LOAD (R)	USMA-11 LOAD (R)	USNA-15 LOAD (R)	USCGA-12 LOAD (R)	USMMA- LOAD (R)
FREQUENCY CAME IN LATE TO CLASS				60(199)	
FREQUENCY OVERSLEPT AND MISSED A SCHEDULED ACTIVITY	-49(-023)	34(036)	36(037)		
FREQUENCY FAILED TO COMPLETE A HOMEWORK ASSIGNMENT ON TIME				32(138)	
FREQUENCY WALKED TOURS, SERVED CONFINEMENTS; RESTRICTED OR EXTRA DUTY		59(-094)	86(-050)		

ATTACHMENT IX

ROLE PERFORMANCE SLACKNESS (CONTINUED)

VARIABLE NAME	USAFA-18 LOAD (R)	USMA-11 LOAD (R)	USNA-15 LOAD (R)	USCGA-12 LOAD (R)	USMMA- LOAD (R)
FREQUENCY RECEIVED DEMERITS	-50(178)	60(-067)	86(-089)	48(098)	
FREQUENCY DRANK ALCOHOLIC BEVERAGES				31(169)	
FREQUENCY SKIPPED A CLASS				65(044)	
FACTOR VALIDITY	-077	-109	-070	174	

119. TYPICAL COLLEGE EXTRA-CURRICULAR ACTIVITIES

VARIABLE NAME	USAFA-26 LOAD (R)	USMA-24 LOAD (R)	USNA-6 LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
FREQUENCY VISITED NEARBY COMMUNITY OR LARGE CITY	51(-043)	37(096)	-48(052)		
FREQUENCY CAME IN LATE TO CLASS			-37(251)		
FREQUENCY ARRANGED A DATE FOR ANOTHER STUDENT		48(092)	-50(117)		
FREQUENCY OPENLY DEISAGREED WITH AN INSTRUCTOR IN CLASS		33(165)			
FREQUENCY ASKED AN INSTRUCTOR FOR ADVICE AFTER CLASS		31(090)			
FREQUENCY DRANK ALCOHOLIC BEVERAGES	32(078)	31(189)	-33(220)		
FREQUENCY SKIPPED A CLASS			-36(135)		
FREQUENCY DATED	53(074)	60(145)	-58(230)		
FREQUENCY WAS A GUEST AT FACULTY OR OFFICERS HOME		35(117)			
FACTOR VALIDITY	032	161	-238		

120. ACADEMY/MILITARY REFERENCE GROUP IDENTIFICATION

VARIABLE NAME	USAFA-11 LOAD (R)	USMA-18 LOAD (R)	USNA LOAD (R)	USCGA-15 LOAD (R)	USMMA- LOAD (R)
ATTENDED HIGH SCHOOL YEAR PRIOR TO ENTRY					
ATTENDED AN ACADEMY SPONSORED PREP SCHOOL					
ATTENDED A UNIVERSITY, COLLEGE, OR JUNIOR COLLEGE YEAR PRIOR TO ENTRY					
SIMILARITY OF MY ATTITUDES WITH STUDENTS AT THE ACADEMY	66(042)	53(032)			
SIMILARITY OF MY ATTITUDES WITH STUDENTS WHO RECENTLY GRADUATED FROM THE ACADEMY	55(194)	62(142)		-55(239)	
SIMILARITY OF MY ATTITUDES WITH OFFICERS AT THE ACADEMY		45(168)			
SIMILARITY OF MY ATTITUDES WITH OTHER OFFICERS	32(186)	55(114)		-55(236)	
SIMILARITY OF MY ATTITUDES WITH OTHER MILITARY OR MARITIME PERSONNEL	40(124)	49(034)		-49(061)	
SIMILARITY OF MY ATTITUDES WITH STUDENTS AT OTHER ACADEMIES	51(046)	44(079)		-35(182)	
FACTOR VALIDITY	100	067		-147	

121. MILITARY REFERENCE GROUP IDENTIFICATION

Variable name	USAFA-24 Load (r)	USMA- Load (r)	USNA- Load (r)	USCGA- Load (r)	USMMA- Load (r)
Similarity of my attitudes with other officers	37(186)				
Similarity of my attitudes with other military or maritime personnel	34(124)				
Factor Validity	196				

122. TOO LITTLE RESPONSIBILITY AND AUTHORITY

Variable name	USAFA-14 Load (r)	USMA- Load (r)	USNA- Load (r)	USCGA- Load (r)	USMMA- Load (r)
Feelings that the things I had to do were against my judgment - 1st summer	31(-062)				
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 1st summer	75(075)				
Being unclear just what the scope and responsibilities of my role were - 1st summer	36(061)				
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 4th class year	81(092)				
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 3rd class year	47(124)				
Factor Validity	131				

123. ROLE CONFLICT

Variable name	USAFA-25 Load (r)	USMA-16 Load (r)	USNA-17 Load (r)	USCGA-1 Load (r)	USMMA- Load (r)
Emotional feelings about the Academy		-40(107)		31(130)	
Feeling that the things I had to do were against my judgment - 1st summer	57(-062)	84(-090)	-77(-134)	-73(-094)	
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 1st summer		32(023)	-33(106)		
Feeling that the things I had to do were against my judgment - 4th class year	61(-098)	90(-070)	-80(-119)	-80(-122)	
Feeling that the things I had to do were against my judgment - 3rd class year	52(-192)	76(-213)	-66(-141)	-71(-239)	
Feeling that I had too little responsibility and authority delegated to me by superior officers and upperclassmen - 3rd class year			-31(124)		
Similarities of my attitudes with students you knew who resigned				-30(-246)	
Similarities of my attitudes with officers at the Academy		-31(168)		36(116)	
Of those close friends in your company or squadron, how do (or did) they generally feel about the Academy		-30(119)			
Effect of increasing familiarity with the military on staying	-28(314)				

ROLE CONFLICT (CONTINUED)

Variable name	USAFA-25 Load (R)	USMA-16 Load (R)	USNA-17 Load (R)	USCGA-1 Load (R)	USMMA- Load (R)
Effect of opportunity for personal growth on staying	-21(193)			31(202)	
Effect of leading a disciplined well-structured life	-20(039)			37(176)	
Satisfaction with opportunity to exercise initiative				32(170)	
Factor Validity	-324	-090	084	192	

124.

AMOUNT OF WORK AFFECTED QUALITY

Variable name	USAFA-3 Load (R)	USMA- Load (R)	USNA-4 Load (R)	USCGA-4 Load (R)	USMMA- Load (R)
Feeling of not knowing what Academy officials and upperclassmen expected of me - 1st summer			31(-109)		
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen - 1st summer		84(-115)	57(-084)		
Thinking that the amount of work I had to do might interfere with how well it got done - 1st summer	71(062)	47(-054)	71(-052)	62(048)	
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen - 4th class year		86(-095)	56(-082)		
Thinking that the amount of work I had to do might interfere with how well it got done - 4th class year	86(121)		72(-072)	83(070)	
Thinking that the amount of work I had to do might interfere with how well it got done - 3rd class year	69(138)	33(-091)		77(125)	
Factor Validity	136	-118	-067	093	

125.

ENVIRONMENTAL INFLUENCE

Variable name	USAFA-16 Load (R)	USMA-21 Load (R)	USNA-26 Load (R)	USCGA- Load (R)	USMMA- Load (R)
Thinking that the amount of work I had to do might interfere with how well it got done - 3rd class year		31(-091)			
Satisfaction with opportunity to sleep	44(-242)		26(047)		
Satisfaction with leave and liberty		-34(062)	22(076)		
Satisfaction with availability of free time at the Academy	30(-168)	-46(046)	25(082)		
Satisfaction with control over pay			24(-253)		
Number of courses in which homework load was reasonable for course	45(-260)		45(-099)		
Number of courses in which frequency of quizzes and tests were reasonable for course	36(-117)		52(-089)		
Number of courses in which there was fairness in grading	44(-075)		53(-094)		
Factor Validity	-271	-001	-236		

126.

GENERAL SATISFACTION

VARIABLE NAME	USAFA- LOAD (R)	USMA-23 LOAD (R)	USNA-1 LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
ATTENDED ACADEMY BECAUSE WANTED TO SERVE MY COUNTRY			31(047)		
EMOTIONAL FEELINGS ABOUT THE ACADEMY		24(107)			
FEELING THAT I WASN'T FULLY QUALIFIED TO HANDLE WHAT ACADEMY OFFICIALS AND UPPERCLASSMEN EXPECTED OF ME - 1ST SUMMER		22(-046)			
SIMILARITY OF MY ATTITUDES WITH STUDENTS YOU KNEW WHO RESIGNED		-24(-108)	-45(-146)		
SIMILARITY OF MY ATTITUDES WITH OTHER STUDENTS YOU KNEW WHO WERE SEPARATED			-39(-034)		
SIMILARITY OF MY ATTITUDES WITH OFFICERS AT THE ACADEMY			46(036)		
EFFECT OF ANTIMILITARISTIC ATTITUDES OF SOME PEOPLE TODAY ON STAYING			40(061)		
EFFECT OF ATTITUDES OF THE LOCAL COMMUNITY TOWARD ACADEMY STUDENTS ON STAYING		22(059)			
EFFECT OF END OF U.S. INVOLVEMENT IN SOUTHEAST ASIA ON STAYING		20(080)			
EFFECT OF ADVERSE PUBLICITY BY THE MILITARY ON STAYING			41(-033)		
EFFECT OF CHANGING MILITARY OR MARITIME CAREER OPPORTUNITIES ON STAYING		26(068)			
EFFECT OF INCREASING FAMILIARITY WITH THE MILITARY OR MARITIME SERVICE		28(267)	40(320)		
OF THOSE CLOSE FRIENDS IN YOUR COMPANY OR SQUADRON, HOW DO (OR DID) THEY GENERALLY FEEL ABOUT THE ACADEMY		25(119)	47(088)		
EFFECT OF OPPORTUNITY FOR PERSONAL GROWTH AND DEVELOPMENT ON STAYING		28(206)	42(271)		
EFFECT OF LIVING IN A COMPETITIVE ENVIRONMENT ON STAYING			33(034)		
EFFECT OF FREQUENT CHALLENGES TO ABILITY ON STAYING			34(053)		
EFFECT OF LEADING A DISCIPLINED WELL-STRUCTURED LIFE ON STAYING			58(070)		
SATISFACTION WITH SELECTION OF STUDENT CHAIN-OF-COMMAND			34(-072)		
SATISFACTION WITH OPPORTUNITY TO EXERCISE INITIATIVE		29(156)	38(171)		
SATISFACTION WITH LEAVE AND LIBERTY			43(076)		
SATISFACTION WITH AVAILABILITY OF FREE TIME AT THE ACADEMY			36(082)		
SATISFACTION WITH OPPORTUNITY FOR FEMALE COMPANIONSHIP			37(-047)		
SATISFACTION WITH OFFICIAL EXPLANATIONS OF PROCEDURES AND PRACTICES			32(-123)		
NUMBER OF COURSES IN WHICH THERE WAS FAIRNESS IN GRADING		-21(-144)			
NUMBER OF COURSES IN WHICH THE INSTRUCTOR KNEW THE SUBJECT MATTER WELL		-21(028)			
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON INSPECTIONS			35(081)		
FACTOR VALIDITY		125	132		

127. SATISFACTION WITH ACADEMY POLICIES AFFECTING THE STUDENT

VARIABLE NAME	USAFA-1 LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
ACCURACY OF EXPECTATIONS ABOUT OPPORTUNITY FOR SELF-IMPROVEMENT	32(091)				
ACCURACY OF EXPECTATIONS ABOUT STUDENT PRIVILEGES AND LEAVE	-36(-164)				
FEELING THAT THE THINGS I HAD TO DO WERE AGAINST MY JUDGMENT - 4TH CLASS YEAR	-30(-098)				
FEELING THAT THE THINGS I HAD TO DO WERE AGAINST MY JUDGMENT - 3RD CLASS YEAR	-44(-192)				
FEELING THAT I HAD TOO LITTLE RESPONSIBILITY AND AUTHORITY DELEGATED TO ME BY SUPERIOR OFFICERS AND UPPERCLASSMEN - 3RD CLASS YEAR	-35(124)				
SIMILARITY OF MY ATTITUDES WITH STUDENTS YOU KNEW WHO RESIGNED	-49(-089)				
SIMILARITY OF MY ATTITUDES WITH OFFICERS AT THE ACADEMY	53(081)				
EFFECT OF INCREASING FAMILIARITY WITH THE MILITARY ON STAYING	36(314)				
OF THOSE CLOSE FRIENDS IN YOUR COMPANY OR SQUADRON, HOW DO (OR DID) THEY GENERALLY FEEL ABOUT THE ACADEMY	59(039)				
STUDENT REGULATIONS TEND TO BE APPLIED UNIFORMLY	42(-113)				
DISCIPLINARY ACTION TENDS TO BE CONSISTENT FOR THE SAME INFRACTION	44(-100)				
DISCIPLINARY ACTION IS APPROPRIATE TO THE INFRACTION	42(-078)				
STUDENTS TEND TO CONSISTENTLY COMPLY WITH THE REGULATIONS	33(-054)				
EFFECT OF OPPORTUNITY FOR PERSONAL GROWTH AND DEVELOPMENT ON STAYING	39(193)				
EFFECT OF QUALITY OF MILITARY OR MARITIME TRAINING PROGRAM ON STAYING	63(-053)				
IN GENERAL, HOW DID YOUR LAST LEADERSHIP RATING COMPARE WITH THE LEADERSHIP RATINGS OF YOUR CLASSMATES	31(096)				
SATISFACTION WITH SELECTION OF STUDENT CHAIN-OF-COMMAND	67(-121)				
SATISFACTION WITH STUDENT INFLUENCE IN POLICY DECISIONS	70(-086)				
SATISFACTION WITH OPPORTUNITY TO EXERCISE INITIATIVE	62(039)				
SATISFACTION OF AVAILABILITY OF ADVICE, GUIDANCE AND FEEDBACK	39(-023)				
SATISFACTION WITH CONTROL OVER YOUR PAY	32(-129)				
SATISFACTION WITH LEAVE AND LIBERTY	47(-029)				
SATISFACTION WITH AVAILABILITY OF FREE TIME AT THE ACADEMY	44(-168)				
SATISFACTION WITH OPPORTUNITY FOR FEMALE COMPANIONSHIP	37(-022)				
SATISFACTION WITH STUDENT-CENTER-TYPE FACILITIES (E.G. COLLEGE STUDENT UNION BUILDING)	42(-264)				

SATISFACTION WITH ACADEMY POLICIES AFFECTING THE STUDENT (CONTINUED)

VARIABLE NAME	USAFA-1 LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA- LOAD (R)	USMMA- LOAD (R)
SATISFACTION WITH OFFICIAL EXPLANATIONS OF PROCEDURES AND PRACTICES	59(-157)				
SATISFACTION WITH LEADERSHIP QUALITIES OF OFFICERS AND STAFF	71(-153)				
FREQUENCY RECEIVED DEMERITS	-38(178)				
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON DRILLS AND CEREMONIES	31(-046)				
4TH CLASS - DESIRED LESS ACTUAL EMPHASIS ON OPPORTUNITY TO EXERCISE INDIVIDUAL INITIATIVE	-32(-046)				
FACTOR VALIDITY	-098				

123. ROLE AMBIGUITY

VARIABLE NAME	USAFA- LOAD (R)	USMA-9 LOAD (R)	USNA-25 LOAD (R)	USCGA-17 32 LOAD (R)	USMMA- LOAD (R)
PARTICIPATED IN A STATE OR REGIONAL SPEECH OR DEBATE CONTEST WHILE IN HIGH SCHOOL				-25(052)-32	
EDITED OR WORKED ON THE HIGH SCHOOL PAPER, YEARBOOK, OR LITERARY MAGAZINE WHILE IN HIGH SCHOOL				-21(084)-32	
MILITARY SCHOLARSHIP TURNED DOWN				26(102)-32	
PERCEIVED SENSITIVITY TO CRITICISM				-25(-113)-32	
FEELING OF BEING UNCLEAR JUST WHAT THE SCOPE AND RESPONSIBILITIES OF MY ROLE WERE - 1ST SUMMER				-25(-039)-32	
FEELING OF NOT KNOWING WHAT ACADEMY OFFICIALS AND UPPERCLASSMEN EXPECTED OF ME - 4TH CLASS YEAR	-38(029)		56(-035)		
FEELING OF NOT KNOWING WHAT MY SUPERIOR COMMISSIONED OFFICERS AND UPPERCLASSMEN THOUGHT OF ME OR HOW THEY EVALUATED MY PERFORMANCE - 4TH CLASS YEAR	-70(058)	50(059)		68(-051)-17	
FEELING OF BEING UNCLEAR JUST WHAT THE SCOPE AND RESPONSIBILITIES OF MY ROLE WERE - 4TH CLASS YEAR		36(042)			
FEELING OF NOT KNOWING WHAT ACADEMY OFFICIALS AND UPPERCLASSMEN EXPECTED OF ME - 3RD CLASS YEAR	-45(074)		38(118)	36(154)-17	
FEELING OF NOT KNOWING WHAT MY SUPERIOR COMMISSIONED OFFICERS AND UPPERCLASSMEN THOUGHT OF ME OR HOW THEY EVALUATED MY PERFORMANCE - 3RD CLASS YEAR	-64(078)	60(201)		79(140)-17	
FEELING THAT I HAD TOO LITTLE RESPONSIBILITY AND AUTHORITY DELEGATED TO ME BY SUPERIOR OFFICERS AND UPPERCLASSMEN - 3RD CLASS YEAR		41(112)			
FEELING OF BEING UNCLEAR JUST WHAT THE SCOPE AND RESPONSIBILITIES OF MY ROLE WERE - 3RD CLASS YEAR		55(252)		25(247)-32 33(247)-17	
SIMILARITY OF MY ATTITUDES WITH STUDENTS YOU KNEW WHO RESIGNED				-20(-246)-32	
SIMILARITY OF MY ATTITUDES WITH OTHER STUDENTS YOU KNEW WHO WERE SEPARATED				-28(-074)-32	

ROLE AMBIGUITY (CONTINUED)

Variable name	USAFA- Load (R)	USMA-9 Load (R)	USNA-25 Load (R)	USCGA-17 32 Load (R)	USMMA- Load (R)
4th class - desired less actual emphasis on drills and ceremonies				-22(-039)-32	
4th class - desired less actual emphasis on comaraderie				-20(046)-32	
Feeling of not knowing what Academy officials and upperclassmen expected of me - 1st summer			45(-109)		
Factor Validity	-018	346	048	061-17 125-32	

129. INFLUENCE OF RELIGIOUS CONVICTIONS ON ACADEMY PEER GROUP ACTIVITIES

Variable name	USAFA- Load (R)	USMA-22 Load (R)	USNA- Load (R)	USCGA- Load (R)	USMMA- Load (R)
Frequency attended religious services		-33(-216)			
Frequency drank alcoholic beverages		35(189)			
Classmates in your unit were easy to approach		-20(-040)			
Frequency asked an instructor for advice after class		-20(090)			
Factor Validity		232			

130. AVAILABILITY OF INSTRUCTOR

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-5 Load (R)	USCGA- Load (R)	USMMA- Load (R)
Satisfaction with individual instruction available			-40(057)		
Number of courses in which individual instruction was given to those in need			-38(057)		
Factor Validity			-156		

131. ADEQUACY OF CONTACT

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA-10 Load (R)	USCGA-19 Load (R)	USMMA- Load (R)
Adequacy of contact with your family and friends during the 1st summer			80(-119)	73(-114)	
Adequacy of contact with your family and friends during 4th class			84(-093)	80(-082)	
Factor Validity			-123	-049	

132.

TENSION

Variable name	USAFA- Load (r)	USMA- Load (r)	USNA-27 Load (r)	USCGA- Load (r)	USMMA- Load (r)
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen - 1st summer			-21(-084)		
Thinking that I could not satisfy the conflicting demands of various Academy officials and upperclassmen - 4th class year			-24(-082)		
Satisfaction with the opportunities to be alone during the 1st summer			-28(096)		
Satisfaction with the opportunities to be alone during the 4th class			-25(130)		
Effect of adverse publicity about the military on staying			-23(-033)		
1st summer - desired less actual emphasis on athletics			-22(051)		
Factor Validity			046		

133.

FEELING UNQUALIFIED TO HANDLE DUTIES

Variable name	USAFA- Load (r)	USMA- Load (r)	USNA- Load (r)	USCGA-20 Load (r)	USMMA- Load (r)
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me - 1st summer				-72(194)	
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me - 4th class year				-87(197)	
Feeling that I wasn't fully qualified to handle what Academy officials and upperclassmen expected of me - 3rd class year				-72(133)	
Factor Validity				-184	

134.

FAIRNESS OF COURSE REQUIREMENTS AND GRADING

Variable name	USAFA- Load (r)	USMA- Load (r)	USNA- Load (r)	USCGA-25 Load (r)	USMMA- Load (r)
Satisfaction with individual instruction available				39(090)	
Number of courses in which homework load was reasonable for course				65(-102)	
Number of courses in which frequency of quizzes and tests were reasonable for course				69(-176)	
Number of courses in which there was fairness in grading				66(-092)	
Number of courses in which the instructor stimulated my interest in the subject				34(118)	
Factor Validity				-112	

135. SATISFACTION WITH FREE TIME AVAILABILITY

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-27 LOAD (R)	USMMA- LOAD (R)
SATISFACTION WITH OPPORTUNITY TO SLEEP				52(-065)	
SATISFACTION WITH AVAILABILITY OF ADVICE, GUIDANCE AND FEEDBACK				32(-150)	
SATISFACTION WITH AVAILABILITY OF FREE TIME AT THE ACADEMY				24(-041)	
FACTOR VALIDITY				-039	

136. NON-ACADEMY REFERENCE GROUP IDENTIFICATION

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-36 LOAD (R)	USMMA- LOAD (R)
SIMILARITY OF MY ATTITUDES WITH STUDENTS ATTENDING CIVILIAN COLLEGES				-51(-210)	
AGE ON DECEMBER 31 OF ENTRY YEAR				-30(-103)	
FACTOR VALIDITY				109	

137. PERCEIVED INSTRUCTIONAL QUALITY

VARIABLE NAME	USAFA- LOAD (R)	USMA- LOAD (R)	USNA- LOAD (R)	USCGA-3 LOAD (R)	USMMA- LOAD (R)
NUMBER OF COURSES IN WHICH THE INSTRUCTOR CALLED STUDENTS BY THEIR FIRST NAMES				31(115)	
NUMBER OF COURSES IN WHICH THE INSTRUCTOR STIMULATED MY INTEREST IN THE SUBJECT				32(118)	
FREQUENCY OPENLY DISAGREED WITH AN INSTRUCTOR IN CLASS				53(206)	
FREQUENCY DID EXTRA (UNASSIGNED) READING FOR A COURSE				73(-097)	
FACTOR VALIDITY				-038	

NON-ACADEMY FACTORS

138. EFFECT OF ENLISTED SERVICE OBLIGATION AFTER RESIGNING

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA-28 Load (R)	USMMA- Load (R)
Perceived academic ability at time of entry				-51(-065)	
Perceived mathematical ability at time of entry				-76(-076)	
Perceived self-confidence (intellectual) at time of entry				-37(068)	
Effect of obligation to perform enlisted service after resigning from the Academy				35(310)	
Factor Validity				120	

139. CONCERN FOR TUITION FREE EDUCATION AND LONG RANGE FINANCIAL SECURITY AND EFFECT OF NATIONAL ECONOMIC CONDITIONS

Variable name	USAFA- Load (R)	USMA- Load (R)	USNA- Load (R)	USCGA-21 Load (R)	USMMA- Load (R)
Attended Academy because graduation offered opportunity for long range financial security				-41(251)	
Attended Academy because tuition free education				-39(-062)	
Effect of national economic conditions on staying				-67(242)	
Factor Validity				-229	

SPECIFIC SOURCES OF ATTRITION VARIANCE

Students Characteristics at Entry Factors

Factors (note b)	Factor Validity by Academy (note a)				
	AFA	NA	MA	CGA	MMA
Commitment to graduation and to career choice (3)	366	182	178	237	134 132
Benevolence and socio-political influence (5)	047	063	-	-	243
Political conservatism (7)	-	-	-	131	094
Family academy or service experience (10)	058	-	102	-	-
Artistic ability (11)	-105	-111	-	-	-
High school nonathletic activities index (16)	-056	060	-	-	-
Socially acceptable reasons for entry (19)	-048	-	-061	-	-157
Academic aspirations and confidence (18)	-	-	-	171	-
Self-rated academic ability (30)	-	-	-122	-	-
Verbal ability (17)	-052	-	-	-	-
Economic and prestige benefits of academy (15)	083	-	-	-	-
Desire for travel and adventure (23)	-	-	-	-	162
Total variance accounted for by student characteristics (note c)	17	4	8	10	15

a/In some cases, signs of validity coefficients have been changed to make interpretations more obvious. The criterion was coded 1 for retention and 0 for attrition. In these tables, factor coding should be taken to be high scores meaning more of the attribute or characteristic measured by the factor. Decimals preceeding validities are omitted.

b/The sequential order of the factor in Attachment VIII is shown in parenthesis following each factor.

c/Total variance is equal to the sum of squared validities.

Academy Environment Factors

	Factor Validity by Academy				
Factor	AFA	NA	MA	CGA	MMA
Satisfaction with traditional military training (35)	079	-	125	163	-
General satisfaction (32)	-	103	188	-	-
Role tension (33)	-	059	088	-	-
Nonacademy reference group identification (39)	-	-106	-	-	-138
Academy or military reference group identification (34)	-	108	-	-	132- -153
Upperclassman and classmate leadership (40)	074	-	-	-	-
Upperclassman leadership (37)	-	-	-152	-	-
Satisfaction with emphasis on group athletics (44)	-	-	172	-	-
Total variance accounted for by academy environment factors	1	4	11	3	6

Nonacademy Factors

	Factor Validity by Academy				
Factor	AFA	NA	MA	CGA	MMA
External Opportunities and national economic conditions (43)	-	-	-	-	-245
Total variance accounted for by nonacademy factors	-	-	-	-	6

4th Class

Student Characteristics

	AFA	NA	MA	CGA	MMA
Political conservatism (46)	-	057	054	121	128
Commitment to graduation (60)	076	074	-	-	-
Mathematical ability (49)	-	061	-	-	134
Academic achievement (50)	102	-	-	-	-
Academic ability (51)	-	-	104	-	-
Benefits from attending academy (54)	-	-	084	-	-
Accuracy of expectations (47)	-	-	079	-	-
Father's academy/service experience (59)	-	-	078	-	-
Degree aspiration (58)	-	-	-	-	132
Parents' education (62)	071	-	-	-	-
High school nonathletic participation (57)	-	-066	-	-	-
Self-rated leadership (61)	-	-	-	-	-149
Desire for travel and adventure at sea (63)	-	-	-	-	187
Benevolence and sociopolitical influence (48)	-083	077	-054	-	111
Athletic ability (45)	-067	073	-	-	120
Socially acceptable reasons for entering (55)	-	-078	-	-169	-171
Total variance accounted for by student characteristics	3	3	4	4	17

4th Class

Academy Environment

	AFA	NA	MA	CGA	MMA
Overall satisfaction with academy (70)	-	217	146	-	-
Perceived instructional quality or variety (67)	239	-	090	164	177
Typical college extracurricular activities (72)	-	251	195	138	116
Too little responsibility and authority (76)	-	095	-	174	157
Satisfaction w/free time and opportunities (71)	-077	-106	-112	-	-
Satisfaction w/group athletics (65)	-173	-086	154	-118	-
Identification with academy or military reference group (74)	-	072	-	153	-
Identification w/nonacademy/military reference groups (75)	-	-091	-	-	-102
Upperclassman support and encouragement (66)	-063	-	-	-	-113
Classmate support and encouragement (68)	-086	-	-	-	-141
Classmate task emphasis ( )	-	-	-	-	115
Role tension (69)	061	-	-	-	-156
Role conflict (81)	-	-063	-	-	-
Role performance slackness (78)	103	-	-	-	-
Satisfaction with traditional military training (73)	-	-	-	148	-
Satisfaction with emphasis on initiative (79)	-	-	058	-	-
Total variance accounted for by academy environment	11	16	11	14	20

Nonacademy Factors

External opportunities and economic conditions (84)	-	-	-	-	240
Total variance accounted for by nonacademy factors	-	-	-	-	6

3d Class

Student Characteristics

	AFA	NA	MA	CGA
Commitment to graduation (94)	107	158	099	091
Benefits from attending academy (92)	073	180	041	-
Political conservatism (90)	-	-	058	108
Overall academic ability (87)	-074	124	-	138
Benevolence and sociopolitical influence (93)	-057	-	-073	-
High school vs prep school or college attendance (97)	-	-057	-	-
Expressive ability (89)	-	-	-093	-
Parent's socioeconomic status (98)	-	-098	-	-
Athletic characteristics (88)	-	-	-	-095
General life goals and reasons for attending (aspiration level) (99)	-	-196	-	-
Academic confidence (100)	-	-	-	168
Star status (102)	-	-	-	091
Total variance accounted for by student characteristics	3	12	3	8

3d Class

Environment

	AFA	NA	MA	CGA
Satisfaction with academic program (107)	185	190	165	286
Uniformity of norms and compliance (108)	-073	-121	-208	-411
Tasks contrary to judgment (123)	-324	-084	-090	-192
Role performance slackness (118)	077	-070	-109	174
Satisfaction w/tradition of military training (106)	-	220	083	136
Amount of work affected quality (124)	136	-067	-118	093
Satisfaction w/group athletics (105)	168	-119	083	-
Upperclassman support and encouragement (113)	-	-	088	-
Classmate support and encouragement (111)	-	-	-124	-100
Upperclassman/classmate task emphasis (114)	091	-	170	-
Reasonableness of course demands and satisfaction with pay system (125)	-271	-253	-	-
Typical college extracurricular activities (119)	-	238	161	-
Too little responsibility and authority ( )	131	-	-	-
General satisfaction (126)	-	132	125	-
Satisfaction with policies affecting students (127)	-098	-	-	-
Role ambiguity (128)	-	-	346	-
Drinking vs attending religious services (129)	-	-	232	-
Availability of instruction (130)	-	156	-	-
Reasonableness of academic requirements (134)	-	-	-	-112
Identification with academy/military reference group (120)	100	-	-	147
Nonacademy/military identification (136)	-	-	-	-109
Military reference group identification (121)	196	-	-	-
Total variance accounted for by environment	35	28	37	39

Nonacademy Factors

	AFA	NA	MA	CGA
Effect of enlisted service obligation (138)	290	-	-	120
Effect of national economic conditions (139)	190	-	-	229
Total variance accounted for by nonacademy factors	12	-	-	7

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